

CAN BEEBEE

12

MR. A.V. PERKINS,
47 WALGROVE PARK,
DOBBS FERRY, N.Y.



O'CONNOR AND KANSAS CITY POLICE TEAM OUTSHOOT COMPETITORS



★ **F. M. O'CONNOR**, Kansas City Police, turned in one of the most spectacular performances of the year shooting in the Heart of America National Indoor Pistol Tournament, Kansas City, April 24th-28th. Shooting Peters Target .22's and Police Match .38's and .45's, he won 7 out of 12 firsts, and 3 seconds. His wins and scores were: 50-Yd Slow Fire .22—183 x 200; 25-Yd Rapid Fire .22—192 x 200; National Match Course .22—94-99-97-290; 25-Yd Timed Fire .38—192 x 200; 25-Yd Rapid Fire .38—184 x 200; National Match Course .38—87-99-93-279; National Match Course .45—81-95-95-271; Grand Aggregate of the 12 individual matches with 2474.



★ **KANSAS CITY POLICE TEAM**, and its members, shooting Peters Target .22's and Police Match .38's and .45's, took top honors in 18 out of 20 matches—as well as taking 13 out of 19 seconds, and 12 out of 19 thirds! Members of the team are (left to right): D. E. Bates, L. E. Haupt, J. F. Snow, J. F. Smith, Hugh Adamson, F. M. O'Connor, Joseph Franano, J. S. Lawrence.



★ **JOSEPH FRANANO**, Kansas City Police Team, won the 50-Yd .38 Slow Fire with 174 x 200; the 50-Yd .45 Slow Fire with 174 x 200; and the 25-Yd .45 Rapid Fire with 184 x 200, shooting Peters Police Match .38's and .45's. Franano also took 1 second, 3 thirds, and second in the Grand Aggregate.

★ **J. S. LAWRENCE**, Kansas City Police Team, shooting Peters Target .22's, won the 25-Yd .22 Timed Fire with 194 x 200. He also took 2 thirds, and third in the Grand Aggregate.

★ TOP HONORS

MATCH	1st PLACE	2nd PLACE	3rd PLACE
1 Indiv.	P O'C	P	P L
2 Indiv.	P L	P	#
3 Indiv.	P O'C	P FR	#
4 Indiv.	P O'C	#	#
5 Indiv.	P FR	P	P
6 Indiv.	P O'C	#	P
7 Indiv.	P O'C	P	#
8 Indiv.	P O'C	#	P FR
9 Indiv.	P FR	P O'C	P L
10 Indiv.	P	P O'C	P FR
11 Indiv.	P FR	P O'C	#
12 Indiv.	P O'C	P	P FR
13 Aggre.	P O'C	P FR	P L
14 4-Team	P KC-1	P	#
15 4-Team	P KC-1	P	#
16 4-Team	P KC-2	#	P
17 4-Team	P KC-1	#	P
18 2-Team	P L-B	#	P

KEY: P—Peters; #—Other ammunition; Indiv.—Individual Matches; 4-Team—4-Man Team Matches; 2-Team—2-Man Team Matches; O'C—O'Connor; FR—Franano; L—Lawrence; B—Bates; KC-1—Kansas City Police Team No. 1; KC-2—Team No. 2.

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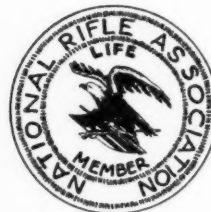
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NATIONAL RIFLE ASSOCIATION
1600 Rhode Island Avenue
Washington, D. C.

The Job of the Year

Because N. R. A.'s members are its best salesmen it is only natural that we turn to our member friends when some important job needs to be done.

Such a job occupies the number one place on our 1939 progress calendar. This year we must materially increase our individual membership if our Association is to continue its progressive record.

Continuation of the N. R. A. progress record throughout 1939 means the teaching of 50,000 more youngsters in the safe handling of firearms; sending of another International Small Bore Rifle Team to Bisley in an endeavor to bring back to America the Pershing Trophy; popularizing the Typical American Sport by the introduction of a new classification plan in registered pistol and rifle tournaments; moulding public opinion favorable to shooting and an adequate national defense; saving the shooters of America thousands of dollars in added taxes (and, in some cases, saving of the entire sport of shooting) by guiding and directing campaigns against unsound anti-gun laws.

So, if you know some sportsman friend who might also appreciate the monthly visits of THE AMERICAN RIFLEMAN as well as the work our Association is doing to improve the lot of honest gun-owning citizens, endorse this application and pass it along. Or, better still, get his signature on the dotted line and, send in the application yourself.

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A monthly visit from THE AMERICAN RIFLEMAN.

2

Personal, non-commercial advice on guns, ammunition, reloading, gunsmithing and other shooting problems.

3

The right to purchase available arms and ammunition from the War Department.

4

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NATIONAL RIFLE ASSOCIATION
1600 Rhode Island Avenue
Washington, D. C.

6-39

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I certify that I am a citizen of the United States, over 18 years of age.

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SAMSOE



BREULER



VARLEY



FRENZEL



LOW

Breuler, Varley, Frenzel at Meriden

Quick on the getaway in his first big '39 outdoor shoot, W. O. Breuler, New Haven, Conn., took home the Connecticut Spring Championship from the Silver City Gun Club's May 7 tournament. Score in the Aggregate 1185—2 up on the winner of Second. Other Firsts, 50 Meters Iron Sights, 200 yards Any Sights. In each of these two matches H. J. Varley won First in Class B. In the Dewar Iron Sights, Johnny Frenzel—popular new State Secretary—First in Class B, was also High Over All in the match, with 3 points up on the winner in Class A—score 397x400—20Xs. All three won with Winchester EZXS.

Wickersham Calif. Champ.

Bud Wickersham, popular recording secretary of the San Francisco Schuetzen Verein, is the new California State Indoor Small Bore Rifle champion. Bud took all comers, shoulder to shoulder, in the National Guard Armory in San Francisco, with a score of 194x200. In the East Bay Rifle League Indoor Championship, shooting at Richmond, he was Second—score 392x400. Bud shoots a Winchester Model 52 Heavy Barrel, and in both matches used Winchester Leader cartridges.

Long Range Rowell

George B. Rowell, Bell, Calif., member of the Los Angeles Rifle & Revolver Club, officially First in the N.R.A. 1938 Long Range Small Bore ranking, shot Winchester EZXS exclusively throughout the year. His rifle, a Winchester 52-Titherington.

Munhall Repeats!

"We just received word from the N.R.A.," writes Ted Charlton, efficient Munhall, Pa., high school team coach, "that our club cleaned up both series, as well as the Aggregate, with 10 consecutive team possibilities—a team score of 5000x5000. How is that?" There is only one answer, Ted: "That is how!"

Samsoe at Sellersville

Perth Amboy, N. J., nationally prominent small bore expert. The kid Samsoe, got going at the big Spring gallery shoot of the Lenape Rifle



Newark, Ohio, Team: Standing, left to right: A. Atwell, C. Schlacter, R. Cochran, W. Spitzer, R. Lawrence. Front: W. Warman, V. Fryman, B. Selby.

Club at Sellersville, Pa., took home to Mrs. Samsoe something new in trophies. There nearly forgot what matches, what scores—so pleased was he with the Sellersville silver! He tied for First in each of the two matches, was outranked in each, won the Aggregate and two Seconds. Scores, 400x400—37Xs, 400x400—32Xs, 800x800—69Xs. Shot with his Model 52 and EZXS.

Ohio Newarkers Win

This year's Gallery Championship of the Central Ohio Rifle League was won by the Newark Rifle & Pistol Club. Other teams entered were Zanesville, Columbus, Portsmouth, Marietta, Grove City, Chillicothe. Each team had to shoot one match on every other team's range. The Newark boys finished in a comfortable lead of 13 points—their average team score 2213. All eight shot Winchester Model 52 and Winchester Leader cartridges.

Mrs. Bartlett of Texas

In the small bore rifle section of the 19th Annual Matches of the Texas Rifle Association at Fort Worth, the well known Mrs. R. P. Bartlett, San Antonio, starred again. She outshot the field in the 200-yard Any Sights Match, with a clean 1-point lead—

score 197x200. In the Two-Man Dewar Any Sights, she and Mr. Bartlett won Second—400 for the lady, friend husband being 2 points down. In the 50 Meter Match, Any Sights, Mrs. Bartlett was Third with 399. In all matches the Bartletts used Winchester Model 52 and EZXS.

Portland Oregonians Again

For the second consecutive time, this year the Portland Rifle Club Team No. 1, Portland, Ore., won the 50-ft. small bore rifle N.R.A. Division "B" Gallery Inter-Club Team championship. Their grand total for six matches, 4,661—a lead of 30 points against 68 teams from coast to coast. The Portlanders shot Winchester Model 52 and Stainless EZXS.

Doc Swanson and Partner

In the Rochester, Minn., 3rd Annual Off-Hand Match, 80 shots, Dr. Emmett O. Swanson, of Minneapolis, was the winner with a score of 760x800—average of 95. In the Superior, Wis., 6th Annual Gallery Tournament, Doc won the Prone Match with a 10-X Possible—Xs scored for dead center hits on the 50-ft. target. He won the Sitting Match with a 9X Possible and the Kneeling with a 9X. Was down 6 in the Standing. Won the Aggregate

with 394. His shooting partner, R. Sandager, of Minneapolis, won the Standing event with 95. Both shot Winchester Stainless cartridges.

New Seattle Champ.

With a clean 2-point lead on the runner-up, George F. Low, of the University of Washington, Seattle, won this year's Individual Inter-Collegiate Postal Match. Score, 386x400. His rifle, Winchester Model 52 Heavy Barrel; ammunition, Winchester Stainless. This young man will bear watching.

Capt. Hilary Brown

Many friends of Hilary Brown, well known at Camp Perry as an outstanding junior small bore marksman, will be glad to know that the Louisville boy has won a commission as Captain in the R.O.T.C. Incidentally, in the William Randolph Hearst match in Louisville this Spring, Hilary shot a score of 192x200, to clinch the regimental championship. His rifle, Model 52 and his ammunition Winchester Stainless.

Second Keeps Going

In a recent letter from Seattle, Chester R. Second, 1938 Schofield Trophy winner in the Northwest Dewar Match, Washington State Small Bore Championships, reports winning another Dewar course event, for the Ensign Trophy. His rifle, Winchester Model 52 and his ammunition Winchester EZXS.

Ted Holm From Iowa

In the Chicago University Invitation Small Bore Match at the end of March, the Tall Corn State had a man there from Des Moines who just would not go home without a First. Got it, in a field of more than 400 entries. Ted Holm, of course! As usual, Ted was shooting his Model 52 and Winchester EZXS.

Moore Wins "10X"

Testing out a new supply of Winchester Precision EZXS, V. A. Moore, of Dallas, Tex., polished up the old spotter and looked again—and again! They were all going in the X ring! V-e-r-y carefully he kept right in the groove. And there's a new Winchester "10X" brassard on his shooting coat now. Score, 200x200—18Xs.

WINCHESTER REPEATING ARMS COMPANY
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Portland, Ore., Rifle Club No. 1 Team: Left to right: Jones, Ritter, Stockton, Green.



WICKERSHAM



MRS. BARTLETT



HOLM



MOORE

THE AMERICAN RIFLEMAN

VOLUME 87

JUNE 1939

NUMBER 6

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Courtesy Mrs. Madeline Nichols, Secretary Croton River Rifle Club, Brewster N. Y. Picture shows the firing line of this club's outdoor range during a match. The range was built entirely by club members.

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POWDER SMOKE

"BON VOYAGE!"

THE INTEREST manifested in the past twelve months by the small bore shooters throughout the Nation indicated without a doubt that there would be real competition for places on the Pershing Team.

The wonderful scores made, not only by the well-known shooters but by many who had until recently been considered in the "second string," made the team's squad the most outstanding of any in recent years. Old performers were on the squad, of course—that was as it should be; but many new names and faces were also present.

Assembled at eight tryout locations throughout the country, this splendid squad has fought for points, and for places on the team. Doctor Russell Gardner, Team Captain, assisted by J. C. Lippencott, Jr., Coach, and Ralph H. McGarity, Adjutant, are faced with no mean task in selecting from the squad the twelve principals and two alternates who will finally comprise the team members.

As this is being written, no man knows who will be on the team, but having confidence in the team officials and in the ability of every individual in the tryouts, we know that the United States will be represented this year at Bisley by a team which will be the equal of any that has heretofore crossed the Atlantic. Win or lose, this team will represent not only the American shooters, but America as well, on the historic Bisley range.

At this time, when all Europe—and in fact the entire world—is in suspense and jittery because of war clouds hanging over Central Europe, it is possible for the people of the world to take a lesson from the trip of these fifteen men, traveling (some of them) more than 5,000 miles for a friendly competition with the rifled arm with a like number of citizens of a foreign nation. While the Dictators and the Democracies threaten and cajole one another over imaginary and real boundaries, and threaten free cities with the loss of independence; and while in Europe battalions of boys are marching to support their laboring states, our young Americans will travel 3,000 miles across the Atlantic to share with a similar number of young men of Great Britain the healthful pleasure of friendly competition. In the historic atmosphere of Bisley, the American and British teams will lie down side by side, friends in a

friendly competition; each side playing the game hard and trying for every point—but all for a *friendly* victory.

And yet, while doing his utmost to bring victory to his own team, each individual of each team will realize that the primary purpose of it all—the outstanding result to be attained by the expenditure of so much time and effort all the way through, is not the gaining of that last point which will bring victory to one and defeat to the other, but rather the creation of an international friendship between the representatives of two great nations which will be a real contribution to a lasting peace between the people of America and the people of Great Britain.

Good sportsmanship, self-control, and patient perseverance will back every shot that is fired, and when the match is finished and scores are totalled, the members of the winning team will be happy over a well-earned victory. But they will be made even more happy because among the first to congratulate them will be the splendid sportsmen of the defeated team.

The outstanding lesson to be learned is that of international friendship and good will. What America and Great Britain are doing, others can do if they but will. Instead of spending time and thought upon ravishing undefended Blacks in Ethiopia, and blasting from Europe's map Austria and Czechoslovakia; instead of thinking only in terms of added territory and additional subject peoples, how much better it would be if the Dictators—and in fact all of us—could devote time and thought to finding means whereby all nations could and would live in peace and harmony, as demonstrated daily in the national and individual life of Great Britain and America, and exemplified by the trip of the Pershing Team to Bisley.

And so, as we wish our team a happy voyage and a well-earned victory, we hope even more that the contacts they will make and the friendships thus engendered will be a real contribution to lasting peace and happiness between our two great peoples. Victory for our team we do desire with all our hearts, yet there are other things that we desire more; and it is with these thoughts that we wish our team "Bon Voyage."

THE AMERICAN RIFLEMAN

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JUNE 1939

NO. 6

TUNING UP SMALL BORE RIFLES

By PAUL W. KLIPSCH

SO YOUR GUN WON'T SHOOT, EH? Well, mine wouldn't either—until I committed several jobs of butchery on it.

Having been unable to break out of "restricted class" in any of the three registered small bore tournaments I entered last year—this with a gun that was doing 1.20" consistently from a bench, a natural assumption would be that what I needed was a good stiff correspondence course on "How To Shoot". But such is the nature of man that when he tosses a big old V nine on a "good hold", he must needs seek an alibi.

My last debauch in a registered shoot led me to the strong suspicion that the sling-strap tension could constitute the basis for a fine alibi, since it might have something to do with group size and location. My first act after the shoot was to invest a hard earned iron man in fifty pounds of sash weights. On a favorable week-end, I first fired two ten-shot groups to establish a standard, then I bored a hole in the bench and wired the whole fifty pounds to the sling swivel. Two more groups showed no appreciable change in location of the group center, and the groups were actually smaller than without the sling. The first two groups measured 1.25" and 1.15" on shot centers. With the sash weights, the groups measured 0.85" and 0.95". It was a good alibi while it lasted.

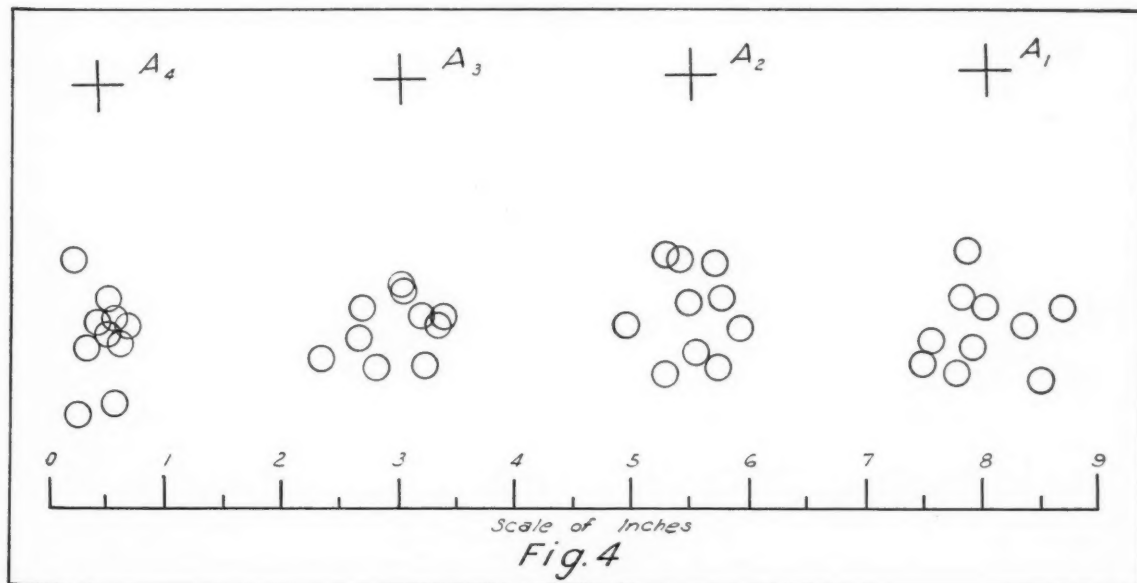
Next I tried seventy shots prone. Fliers began to appear again at unexpected times. The actual sling tension being used in the prone position was measured and found to be

between 38 and 41 pounds. Back at the bench, with 40 and 30 pounds of sash weights, two groups measured 1.80" and 1.60" respectively. Maybe the alibi was all right after all!

Now I must go back into the history of my charcoal-burner—a heavy factory barrel which averaged 1.33" in the factory test. When bench-tested by shooting a hundred rounds in ten-shot groups using several lots of ammunition known to be "good stuff", the smallest group was just 2", and the average for the 100 shots was about 2.5". One maker had just come out with a "full-floating" barrel, so my front band was removed, resulting in a decrease in the average group size of nearly $\frac{3}{4}$ ". Next, a wood screw in the back of the receiver helped some more, so that the rifle would average about 1.4".

When one of the manufacturers started putting adjustable front bands on the heavy-barrelled target jobs, the idea appeared to be a good one. After a little study, a satisfactory combination was evolved, which is shown in Figure 1. The results include the following consecutive bench-rest groups which are taken from a typical day's testing: 1.25", 0.95", 1.05", 1.15", with an average of 1.10" for the series, and no appreciable drift of group-centers.

Mechanically, the barrel band shown in Figure 1 was simply an attempt to control the barrel movement through adjustable pressure between the barrel and fore-end. A U-bolt, two small springs, and a couple of specially made nuts, seems to constitute simple means of doing the job, and



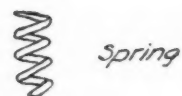
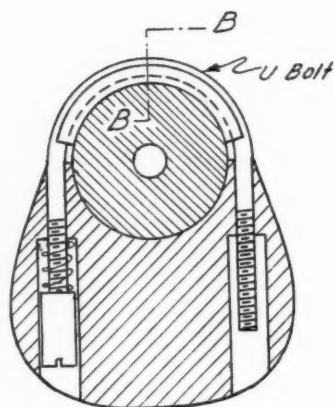
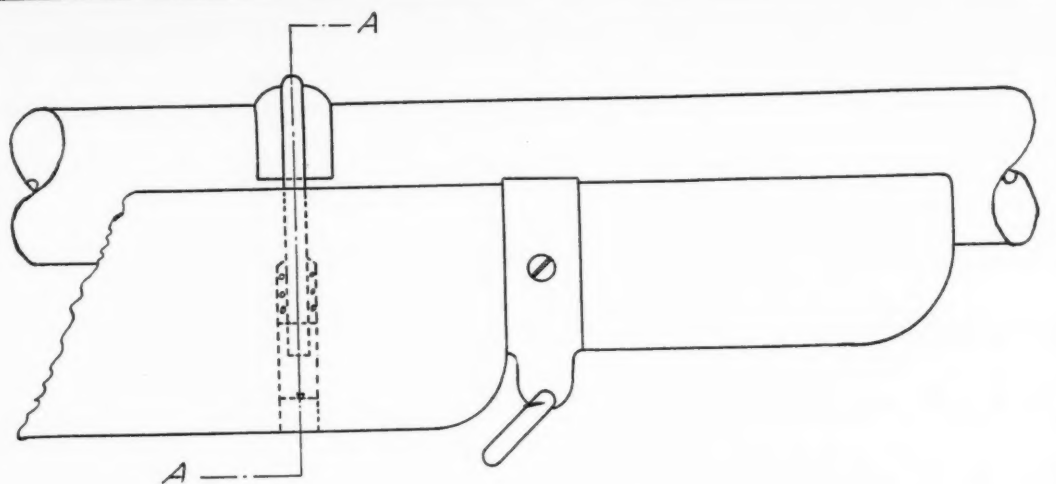


Fig. 1

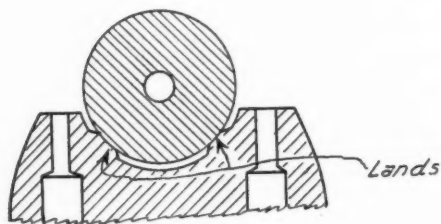


Fig. 2

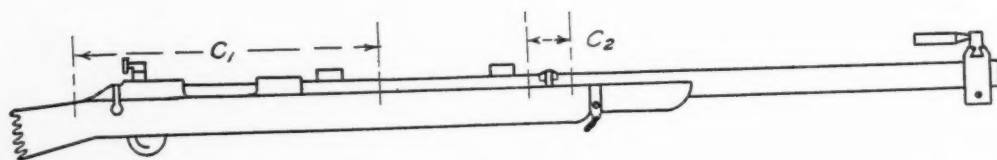


Fig. 3

it certainly made a different gun out of the old smudge pot.

The U-bolt consists of a rod $\frac{1}{8}$ " diameter, threaded $\frac{1}{8}$ " -40 and bent in the proper radius to fit the saddle shown in section B-B of Figure 1. The saddle consists of the piece cut from the top of the sling-swivel band, and grooved in a grinder to receive the U-bolt. The springs are made from wire approximately 0.060" diameter. Actually the wire was obtained by uncoiling and recoiling the springs used in RCA cathode-ray tube sockets. The nuts shown in and to the right of section A-A are about 0.25" outside and preferably about $\frac{3}{8}$ " long, threaded $\frac{1}{8}$ " -40. Obviously other dimensions may be used, but these were found convenient for the material at hand.

A surprising observation was that different lots of ammunition required different adjustments, made by tightening or loosening the screws. Tentatively, it appears that smokeless ammunition takes a tighter adjustment than lesmoke loads, and that an adjustment which is nearly optimum for one class of propellant is not suitable for the other class. With this last remark I may be "sticking my neck out", but any constructive kickbacks will be welcome. Of course, just any old grocery-store fodder can't be made to shoot inch groups, but a batch of hulls set aside as "no good" was used to shoot that aforementioned 1.10" string, after "tuning up" the barrel-band screws.

Another lot of sulphur-and-charcoal which shot 0.75", 1.05", and 1.10" in a different gun, necessitated a half-turn looser adjustment on the screws before it would do under 1.5" consistently in my musket.

This brings us nearly back to the starting point of this article. The old roman candle would squirt 'em into the X-ring from the bench, but would kick out one or two wild ones in nearly every prone group. So now to get to the point—if there is any.

The irons were pulled out of the stock, and the fore-end barrel groove sandpapered down to a condition where the barrel touches the fore-end only at certain small areas. Figure 2 shows, in an exaggerated way, how the wood was cut out to let the barrel rest in a "V-block" effect consisting of "lands" about $\frac{3}{16}$ " wide and $\frac{3}{4}$ " long, spaced at about 45° under the barrel, with relieved grooves about 0.010" deep to prevent contact except on the lands. Longitudinally the lands are centered under the U-bolt barrel band. In Figure 3, C₁ shows the range of firm contact between the receiver and rear end of barrel, and the stock; C₂ is the range of contact over which pressure may be applied with the barrel band. Between C₁ and C₂ a 0.003" feeler can be inserted between barrel and stock, and there is no contact between barrel and stock from the C₂ contact range forward to the tip of the fore-end. The range C₂ is where the "V-block" contact is used.

A little study of the gentle art of making minor adjustments will be helpful. Before you tear up your own pot-metal, or buy a new one, it would be well to read M. A. Cooper's "Making Them Shoot" in the April 1938 AMERICAN RIFLEMAN, page 30. Any butchering should be done a thin slice at a time. You can take it off, but putting it back on is another story.

The result of this change in bedding is shown in Figure 4, which is a picture of four groups—two fired from the bench and two prone, which measured 1.25", 1.05", 1.10", and 1.30". The center of the groups varied vertically and horizontally less than $\frac{1}{8}$ " from each other. Figure 4 is traced from the actual test target which was shot using aiming points A₁, A₂, A₃, A₄ with the sights adjusted to drop the groups below the point of aim as shown. Groups 1 and 2 were shot from the bench, and 3 and 4 were shot prone.

Tests show that within the limits of sling-strap tension normally used, the variation in elevation of group center

is inappreciable, although between extreme limits of zero to fifty pounds the group centers changed by an amount which may be of academic interest. Two such tests are tabulated below, and consist, respectively, of four and five groups of ten shots each from bench rest at 100 yards.

TABLE A

Tension, lbs.	0	50	40	30
Relative elevation of group with respect to group shot with zero tension		+0.35"	+0.15"	0.
Group size	1.60"	1.60"	1.60"	2.00"

Conditions—Variable wind 9 to 11 o'clock, 5-15 M.P.H.

TABLE B

Tension, lbs.	0	50	35	25	25
Relative elevation		+0.30"	+0.20"	+0.10"	+0.10"
Group size	1.05"	1.25"	1.05"	1.25"	1.20"

Conditions—Wind, none; mirage, none; first 4 groups in Table B with one make of ammunition, last with another make.

Paradoxically enough in these tests, pulling down on the sling swivel caused the groups to go high.

The normal variation in sling tension rarely exceeds five pounds, even when one squirms and wiggles between shots, and the resulting deviation of 0.05" in group center, which would result from such variation, is evidently quite negligible.

My wife's little standard barrel which would at one time average under an inch, had gone a little sour, so the cure was tried on it. Whereas groups averaging 1.75" were the rule with the barrel floating, a very light additional pressure on the U-bolt screws pulled the group size down materially. Two typical groups from the last bench test, shot in a very tricky fish-tail wind, are tabulated below.

TABLE C

Group	Extreme Vertical	Extreme Horizontal
1	0.70"	1.05"
2	0.45"	1.55"

While the overall group size is not particularly impressive, the wide horizontal spread can be attributed to the wind conditions.

Incidentally, in the standard-barrel job just referred to, the metal saddle (section B-B in Fig. 1) was not used. Instead, a $\frac{1}{4}$ " x $\frac{1}{2}$ " slice of leather sling strap served as a bearing plate.

The explanation of the results attainable by the alterations is believed to be, (1) that the changed bedding as shown in Figures 2 and 3 causes the point or region of contact (C₂) between barrel and fore-end to remain nearly fixed with changes in sling-strap tension; and, (2) the spring-controlled pressure between barrel and fore-end causes the barrel to vibrate in the same node and amplitude for each shot. By varying the spring pressure, different nodes and/or amplitudes of vibration may be selected at will, until the one is found which is least affected by small changes between individual loads in a given type or lot of ammunition. Exception may be taken to this "theory", but the theory was the basis for the experiment, and the results substantiate the theory. Possibly high-speed photography (See "Electron control for High-Speed Motion Pictures" by Donald G. Fink, Page 250, Electronics 1934) might enable a verification or disproof of the theory, but for the time being, this writer will be satisfied that the results justify the means. I believe the old-model match rifles can be made to equal or exceed in performance some of the new ones, by the means disclosed.

Well, if I don't place in the next big shoot I will have to think up another alibi—or subscribe to that correspondence course in shooting.

NEW QUALIFICATIONS

MR. AVERAGE SHOOTER, the forgotten man of the shooting game, is getting one break through the reorganization of registered tournaments which was recently announced. Now he, and his younger brother, Mr. Tyro Shooter, are to receive another break in the revision of the N. R. A. series of qualifications with both pistol and rifle.

The new qualifications have been designed as training courses in pistol and small-bore rifle marksmanship. They are based on the idea that every man who likes to shoot, likes to shoot for something. They give the inexperienced shooter a gauge by which to measure his improving ability as he progresses through the usual stages of marksman and sharpshooter to that of expert. He is no longer expected to shoot over an expert course of fire in order to qualify in one of the lower classes. Instead, he is offered a simplified course of fire to master before advancing to the more difficult stages.

It is assumed that in order to qualify for a "marksman's" badge, for example, a shooter should have a fair working knowledge of the rudiments of target shooting and be able to apply that knowledge when he steps up to the firing line with a gun in his hands.

But the person who wishes to attain the rating of "sharpshooter" must be advanced beyond this point. He must be able to assume exactly the proper position or stance—he must have absolute control of his breathing—he must show no sign of flinch as he slowly squeezes the trigger to let off the next shot. When you see a man with an expert badge you know that he has pulled the trigger a good many times and has spent many hours in practice in order to achieve that rating, and every hour has been fun.

Since the new qualifications are designed to mark the stages in the development of a shooter, the method of qualifying has also been revised—the red tape has been eliminated. Under the new plan it is not necessary to fire on special registered qualification targets. It is not even necessary to signify your intention of qualifying until you have actually made the grade. You can shoot on your own range and on your own targets (official N. R. A., of course), and you can keep on trying until you finally fire the scores that permit you to receive the correct medal.

Your targets may be fired in any one of the following manners:

- On your home or your club range, before two qualified witnesses who will sign the targets before you mail them to the N. R. A. with your application;
- Under the supervision of officers of an affiliated club in formal or informal competition, who will send a report of firing, with detailed scores, in a letter to the N. R. A.;
- In team or individual matches at N. R. A. registered matches which are conducted over the same course of fire as the qualification course. Shooters qualifying in this manner do not need to secure their targets but need only refer to the scores on the official bulletin when making their application.

Of course, N. R. A. rules must be followed when firing a qualification match.

The complete program now includes four qualification courses: (1) gallery rifle, (2) gallery handgun, (3) outdoor rifle and (4) outdoor handgun. With each course there is a series of appropriate badges which indicate the degree of skill the shooter has attained and, in the case of handgun qualifications, the caliber of arm used. And the

women shooters have not been forgotten, either. Those who prefer it may secure a pin, made as a miniature of the badge, to be worn on their dress—or as a lapel button. In addition, all "experts" are awarded a pocket rating card which certifies to their shooting ability. New medal designs will be used in some—not all—of these courses.

The qualifying scores for these three classes have been set at such a point as to closely conform with the amount of ability needed to secure a similar classification in registered tournament classification. Other than this there is no relationship between the two. In order to prevent any further confusion through the use of similar terms, the postal qualification "distinguished" rating will be discontinued. However, all shooters who have already qualified as "expert," thereby earning a leg on their "distinguished" medal will be permitted to complete this qualification.

Shooters who have once qualified may secure year bars for attachment to their badges to indicate requalification for the same rating. Pistol and revolver shooters who qualify as "expert" with all three popular classes of handguns (.22 caliber, any center fire, and the .45 caliber automatic pistol) may secure a special silver "all-around" qualification award.

The Qualification Courses

I. GALLERY RIFLE (.22 caliber only)

	Position	No. of Targets	Minimum Score per Target
Marksman	Prone	5	85 x 100
	Sharpshooter	2	90 x 100
	Sitting	2	85 x 100
Expert	Kneeling	2	80 x 100
	Prone	2	95 x 100
	Sitting	2	90 x 100
	Kneeling	2	85 x 100
	Standing	2	80 x 100

II. GALLERY PISTOL (open to any caliber handgun)

	Type of Fire	No. of Targets	Minimum Score per Target
Marksman	Slow	5	65 x 100
	Sharpshooter	3	75 x 100
Expert	Timed	3	75 x 100
	Slow	2	85 x 100
	Timed	2	85 x 100
	Rapid	2	85 x 100

III. OUTDOOR RIFLE (.22 caliber only, metallic or scope sights)

	Course of Fire	No. of Targets or Courses	Minimum Score per Target
Marksman	50 yards	4	90 x 100
Sharpshooter	Dewar *	2	378 x 400
Expert	Dewar *	2	388 x 400

* The Dewar course consists of 20 shots at 50 yards and 20 shots at 100 yards.

IV. OUTDOOR PISTOL

	Course of Fire	No. of Scores	.22	.38	.45 (caliber)
Marksman	25 yards—slow fire	4	80	80	60 x 100
Sharpshooter	Camp Perry	2	255	250	225 x 300
Expert	National Match	2	263	257	240 x 300

V. ENTRY FEES

The proper entry fee as shown below must accompany the letter of application for qualification under any of the courses listed.

	Medal	Pin	Year Bar
Marksman	\$.50	\$.30	\$.25
Sharpshooter	.50	.30	.25
Expert	.75	.35	.25
All-Around Pistol	1.00		

NEW STATE LAWS

THE LEGISLATURES OF FORTY of the forty-eight states, as well as the Federal Congress, have been in session this year. Many firearms measures have been introduced and considered—some have been fiercely and seriously fought by shooters and have been successfully defeated. Shooters in Vermont, New Hampshire, Connecticut, Wisconsin and Minnesota have had special reason to fear the enactment of obnoxious firearms legislation but these bills have all been reported "killed" at the present time.

We give below a summary of the 1939 crop of new laws affecting shooters. Two of these must still be signed by the governor before they become effective.

Delaware—Sections 232 and 233 of the Revised Code of Delaware have been amended to clarify the regulations covering the sale of firearms. The license fee for dealers in pistols and revolvers and ammunition for such arms is maintained at \$25.00, payable June 1 to the State Tax Department.

The new law requires dealers to maintain a record of all handgun sales. This record will show:

"... the date of the sale, the name and address of the person purchasing any such deadly weapon, the number and kind of deadly weapon so purchased, the color of the person so purchasing the same, and the apparent age of the purchaser, and the names and addresses of at least two freeholders resident in the County wherein the sale is made, who shall positively identify the purchaser before the sale can be made; provided, that no clerk, employee or other person associated with the seller shall act as one of the identifying freeholders."

Hawaii—The Hawaiian firearms code was revised to permit target shooters to carry their arms to and from the range without a license. The new section:

"Sec. 2549. Exceptions. The provisions of sections 2544-2547 shall not apply to members of police departments, sheriffs, marshals, members of military and naval forces of the Territory and of the United States, mail carriers, law enforcement officers, or to regularly enrolled members of any organization duly authorized to purchase or receive such weapons from the United States or from this Territory, provided such members are at or going to or from their places of assembly or target practice, or persons employed by the Territory or subdivisions thereof or the United States whose duties require them to be armed, while such persons are in the performance of their respective duties, or while going to and from their respective places of duty, nor shall the provisions of sections 2541 and 2542 apply to such firearms or ammunition as are a part of the official equipment of any federal agency."

Iowa—Awaiting the signature of the Governor is Senate Bill 452 which revises the powers, duties and jurisdiction of the state conservation commission.

Maryland—Awaiting the signature of Governor O'Connor is Senate Bill No. 32, chosen by the Legislature from among three other proposed firearms control bills.

This measure follows the principles generally accepted by shooters that control of firearms should be through delayed delivery and registration of dealer gun sales. This bill provides no purchase permits—no general registration—no concealed weapon permits. It does provide:

"452B. A true record shall be made by each dealer in a book kept for the purpose of all pistols or revolvers sold, transferred or otherwise disposed of at wholesale or retail,

which said record shall contain the date of sale, the caliber, make, model and manufacturer's number of the weapon, to which shall be added the name and address of the purchaser. Such record shall be retained by the dealer for a period of not less than three years following the date of such sale.

"Each dealer shall promptly notify the Clerk of the Court of the County where the sale is made, or the Police Commissioner of Baltimore City if the sale is made in said City, of all sales of pistols or revolvers, giving the information contained in the above record. It shall be the duty of each Clerk of the County and of the Police Commissioner of Baltimore City to transmit as promptly as possible a copy of all reports or notifications of the sales of pistols or revolvers to the Superintendent of the Maryland State Police, whose duty it shall be to maintain a file of the records of all sales of pistols or revolvers made in the State.

"452C. It shall be unlawful for anyone to obliterate, remove, change or alter the manufacturer's identification mark or number on any firearm. Whenever on trial for a violation of this section the defendant is shown to have or have had possession of any such firearm, such fact shall be presumptive evidence that the defendant obliterated, removed, changed or altered the manufacturer's identification mark or number.

"452D. It shall be unlawful for any dealer or person to sell or transfer a pistol or revolver to a person whom he knows or has reasonable cause to believe has been convicted of a crime of violence or who is a fugitive from justice.

"It shall be unlawful for any person who has been convicted of a 'crime of violence' or who is a 'fugitive from justice' to possess a pistol or revolver.

"452E. It shall be unlawful for any person to possess, sell, transfer or otherwise dispose of any stolen pistol or revolver, knowing or having reasonable cause to believe same to have been stolen.

"452F. It shall be unlawful for any person to make any loan, secured by a mortgage deposit or pledge, of a pistol or revolver.

"452G. The provisions of this sub-title shall not be construed to include any antique or unserviceable firearms sold or transferred and/or held as curios or museum pieces."

Maine—Section 14 of Chapter 142 of the revised statutes was amended to read as follows:

"Sec. 14. *Certain officers may issue license.* The chief of police or city marshal of any city, or the selectmen of any town, may upon written application therefor issue to any legal resident of such city or town of good moral character, a certificate setting forth that such person has been duly licensed to carry any weapon or weapons mentioned in the preceding section. Said license shall continue in effect to the end of the calendar year in which issued and for 1 year thereafter unless sooner revoked by the chief of police, city marshal, or by the selectmen of the town in which said license was issued."

New York—The mistake of last year has been rectified. After 1939 the pistol shooters of Albany County will go back to their former basis of securing a permit which is good "until revoked" instead of being required to renew the permit annually.

North Carolina—Section 145 of Article II, Schedule B, of the Revenue Act was revised to reduce the annual tax on dealers in metallic cartridges to \$10.00. The old rate of \$50.00 for dealers in pistols is maintained.

A new section was added to the game laws limiting the capacity of automatic shotguns to three shells when hunting upland game birds. This is in conformity with the Federal laws and those of neighboring states.

A FEW WARNINGS

By F. C. NESS

AN M-10 ROSS SPORTER in .280 caliber came in from Troy, New York, a few months ago. It was made in Canada by the Ross Rifle Company, which operated in Quebec some years ago. The rifle handled a .280 Ross load which developed a pressure of 28 long tons, or nearly 63,000 pounds. The Ross straight-pull bolt-action is one of the strongest made, but even so, this rifle was damaged by a standard cartridge, and the shooter was severely injured. A friend of his, a Mr. Cluett, sent the rifle to us.

The stock was split and badly splintered, and the floor plate bulged by powder gases which had escaped into the action when the bolt blew back. The locking threads on the left side of the bolt-head were mashed and gouged by the bolt-stop in the left side of the receiver bridge. The fact that this rude contact tilted and wedged the bolt, thus arresting its rearward motion, perhaps saved the shooter's life. The nature of the damage to the rifle is shown in Figure 1.

This not-uncommon accident resulted from the shooter's failure to lock the bolt in its lug seats before firing the rifle. These threaded seats are in the top and bottom of the receiver hood. When the two-piece bolt is properly assembled (with the bolt-head extended about an inch ahead of the bolt body), the head rotates to the right as the bolt is shoved home into closed position, and its locking threads engage those in the receiver hood. When, on the other hand, the bolt-head is allowed to slip back against the bolt body in assembling, in the position shown in the photograph, the assembly will still enter the receiver, but the head cannot rotate into the locked position. The fact that the Ross bolt can be pushed to the closed position without locking, and the rifle so fired, is a fault in the design. Therefore users of Ross rifles should always make sure the bolt is so assembled that the bolt-head stands out appreciably ahead of the bolt body, so it can properly engage its locking threads.

Once, while hunting deer in Texas, intuition saved me from the embarrassment of a rifle accident, and perhaps serious injury. I was topping a rise and anticipating a shot on the opposite side, when some sixth sense caused me to examine the muzzle of my .220 Swift. To my surprise I found the bore tightly blocked for fourteen inches from the muzzle by a dried weed stem which had broken off just back of the muzzle crown. How it got there, and so solidly stuck, without my knowledge, is a mystery; but there it was, waiting to rupture the barrel—or worse—on the next shot. Needless to say, I carefully watched the bore and guarded the muzzle of my rifle after that experience. If dead weeds can sneak up unobserved, and thoroughly plug a gun barrel, beware of dirt, mud, snow, ice, and grease.

This brings up the matter of guards and other preventive measures. For excluding snow, dust, dirt, and even sand, an ordinary paper target paster glued over the muzzle will do the trick. This thin gummed paper will hardly suffice for excluding gravel, twigs, and other hard substances; however, common adhesive tape will. In damp regions, such as tropical jungles, for example, a thin rubber thumb-stall or finger guard will protect both front sight and muzzle from rain, water, and moisture on foliage. We tried the practicability of this on a .30-'06 by criss-crossing several layers of adhesive tape over the muzzle, and then firing M1 Service loads through the barrel. No abnormal effects were observed.

We carried the experiment further, by plugging the muzzle for four inches with gun grease squeezed from a tube. The first shot did plenty of damage to this Model 1917 Sporter, the same Service load being used. The butt-stock broke off at the small of the grip, and all the wood over the right side of the receiver came off in one piece. The barrel split into three sections at the muzzle, one section folding back at the lower band and swivel (Figure 2). The

Fig. 1



gun could still be fired. The grease was, of course, cleared out of the muzzle by the first shot; but this little demonstration serves to hammer home the oft-repeated admonition to clean out all bore obstructions—including grease—*before* the first shot is fired.

Evidently seams had been started in the barrel, because the next shot finished the job. This shot removed all the remaining wood, and neatly bisected the barrel and case all the way to the breech end. Although the receiver hood was stretched to an oval shape, the action could still be fired. We sent it, with a spare barrel, to Henry Miller, a Canadian gunsmith friend in Tyrone, Ontario, who straightened the receiver, fitted the other barrel and a stock of his own making—and then made 2-inch groups with the rifle at 100 yards, with full-power loads!

The foregoing serves to prove that, basically, our high-power arms are exceedingly strong, and that they have an ample margin of safety as long as all the powder gases are kept confined within the bore. Grease in the chamber, and minor obstructions in the bore, increase the pressures and the back-thrust of the cartridge base on the bolt-face. Usually nothing happens until too much strain is brought upon the weak link—the brass case upon which we depend for gas seal and gas control; and then a punctured or blown primer, or even a ruptured case, permits gas to blow to the rear through the action, sometimes with disastrous results. Sometimes case-heads are improperly annealed, and swell enough to drop their primers under high pressure. When this happens you will either be glad you wore glasses or will wish you had worn them. Because no one can foresee these occurrences, shooting glasses should always be worn, *for each and every shot*.

Grease in the chamber of a rifle has other effects. Sometimes it dents or flutes the cartridge case upon firing. Cleaning oil, bore grease, or bullet lubricant in the chamber of the M-71 Winchester has the peculiar effect of opening the lever about $\frac{1}{4}$ -inch when this .348-caliber rifle is fired. If the lubricant is light this will occur only on the first shot. Speaking of the 71 Winchester, more than one man has tried

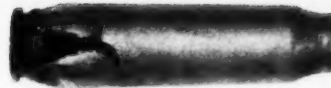


Fig. 3

to shoot the .35 Remington rimless cartridge in this .348-caliber rifle—and Figure 3 shows what happens. This .35 Remington case ruptured as shown, and sent gases into the rifle action with sufficient force to blow out the spring cover on the magazine. Fortunately, no other damage resulted.

The final exhibit, Figure 4, is an example of what happens when a handloader becomes careless or goes too far toward extreme loads. This particular .38 Special Colt was wrecked by a police officer who was generally considered to be a well-informed expert on the technicalities of firearms and ammunition. Such accidents to revolvers are quite common, and have occurred with all makes and models, including the superlatively strong .357 S. & W. Magnum.

We know one experienced shooter and handloader who was tripped up by the general resemblance of Pistol Powder No. 6 to black powder. In an incautious moment he filled his cap-and-ball revolver cylinder with the wrong stuff.

Really, all that is required to avoid these accidents is just a little plain horse sense, and the proper attitude toward firearms. In the realm of shooting, there is no place for contempt of the precautions that are necessary to assure safety to oneself and to others. When there is the slightest doubt as to the advisability of some procedure, then *religiously avoid it*. For example, the old Model 1873 Winchester is a standard rifle chambered for a standard .44-40 cartridge, however, the high-velocity factory ammunition cannot safely be fired in it. The very least harm which can result from firing smokeless loads in this rifle is to have a dose of powder gas sent straight back into the shooter's face.

Fig. 2



Fig. 4



KILLING POWER

By ELMER KEITH

NOTE: *This article was written by Mr. Keith before some of the latest ultra-high-velocity cartridges had been developed, but he has not changed his ideas regarding the basic principles involved.*—Ed.

A GREAT MANY SPORTSMEN, especially the younger generation, regard the catalogue figures of foot-pounds of paper energy as an exact measure of the actual killing qualities of a rifle cartridge. After a good many years of hunting and seeing a lot of big game killed with all manner, types, and calibers of rifles and revolvers, paper energy has come to mean practically nothing to me. For too many other things enter into the picture, such as caliber, velocity, shape, and weight of bullet, while the size of the animal to be killed also has a very great bearing upon the matter.

Take the well-known .30-'06 cartridge with 110-grain bullet at 3500 foot-seconds, for example. This cartridge develops an even 3000 foot-pounds of paper energy, while the same cartridge with a long, heavy, 220-grain bullet develops 2450 foot-seconds velocity, and 2940 foot-pounds of paper energy. Thus, to the average person with little actual experience, it would seem that the 110-grain-bullet load had the greater actual killing power on game. This is, as a matter of fact, true in the case of very small game such as coyotes and woodchucks, and for lung shots on such animals as small deer and antelope. On game like elk, bear, and moose, on the other hand, nothing could be further from the truth. On these animals the longer, slower 220-grain bullet has several times the actual killing power of the other. On game like deer, the long, slow, heavy bullets do not kill as quickly as high-velocity light-weight bullets such as the 150-grain .30-caliber at 3000 foot-seconds velocity. Such small thin-skinned and light game requires a high-velocity bullet that will penetrate to the middle of the animal, and then blow up. To have the same effect upon our larger game, the cartridge would have to be larger in proportion, with the same characteristics, in order to produce equally quick kills; but in this instance we are considering the .30-'06 cartridge, and it is too small to completely blow up the vitals of heavy game as it does of deer. Therefore, if this cartridge is to be used on moose, bear, etc., the long 220-grain bullet is by all odds the best, as it will penetrate very deeply, expanding as it does so. On deer, the 220-grain bullet will usually go clear through the animal, and the latter may travel a considerable distance before falling, owing to the fact that only part of the energy of the bullet is expended upon the animal. Thickness of bullet jacket, amount of lead exposed, shape and diameter of the cavity-point or the construction of other patented expanding points, all have a direct bearing upon the expansion and penetration of any bullet, and this in turn determines its actual killing power on big game.

For another—and stronger—comparison, take the .30-40 Krag cartridge with 220-grain bullet at 2200 foot-seconds muzzle velocity and 2370 foot-pounds of paper energy, in comparison with the old black-powder .45-70 cartridge with 500-grain bullet. This latter cartridge has a muzzle velocity of only 1210 foot-seconds, with energy of 1602 foot-pounds. To the uninitiated, there would seem to be no comparison between the killing power of these two cartridges, everything apparently being in favor of the .30-40; yet long years of continuous use of both cartridges on our larger game has shown the .45-70 load to be by all odds the better killer. Where, then, is paper energy a conclusive

proof of actual killing power? If we used the .30-40 load with 180-grain bullet at 2460 foot-seconds and 2420 foot-pounds, we would have a still greater contrast, yet the fact remains that for the larger game the 220-grain load is the more reliable performer.

If a hunter shoots two moose in the lungs with the .30-40, one with 180-grain bullet and the other with 220-grain, he is apt to find that the higher velocity of the 180-grain causes it to expand more, tear a larger hole, and destroy more lung tissue—with a quicker kill as a result. He is then apt to swear that the 180-grain is by all odds the better killer—as I have often heard men do. However, if he should shoot the next two moose quartering away from him, with the bullets having to penetrate through the heavy muscles of the hips, the paunch, and the intestines before reaching the lung cavity, he would very likely find that the 180-grain bullet went but a short distance and then stopped, only wounding the animal, while the 220-grain penetrated at least into the abdominal cavity, and produced a sick moose. And yet, he is apt to find even this bullet and cartridge too small for such game, if and when he shoots enough of it to be able to form a reliable opinion. Paper-energy figures of various cartridges serve at best as a compromise, and to get a fair comparison one must take into consideration the size of the game to be shot, the hunting conditions—whether brushy or open country, the range, and, last but far from least, where the game is hit.

Small-calibered rifles of very high velocity and extreme accuracy are by all odds the best for very long-range shooting, especially on deer, sheep, goat, and antelope; and when the longer bullets are used, they will kill well on larger animals if hit in the heart, lungs, or spine. By small-calibered rifles in this case, however, I do not mean to include anything less than the .270 Winchester, which cartridge has proved to be good for the smaller big game. I have seen it fail on elk, and even on mule deer, on raking shots, and I personally prefer heavier cartridges. For this same long-range shooting, the various Magnum rifles of calibers varying from .280 Dubiel to .375 will be found to give better results than the smaller cartridges like the .30-'06.

If shooting is to be on heavy game in dense timber, and usually at short range, then the larger-caliber rifles with long, heavy-jacketed bullets are by all odds the best. The bullets do not break up on twigs and limbs and cause misses, and the velocity being lower and the jackets heavier, they usually give very deep and certain penetration, often going completely through an animal and leaving a blood trail on both sides. Cartridges such as the .35 and .405 Winchester, .35 and .400 Whelen, .350 and .375 Magnum, with long, heavy bullets, are in this class, with the .35 Remington, .33 Winchester, .30-'06, and .30-40 with 220-grain bullet, included, but at the bottom of the list. So when you decide to pick your rifle from factory energy tables, it will be well also to give these other matters some consideration.

I have seen quite a bit of game of the deer class shot through the lungs or paunch with the heavier rifles and low-velocity bullets intended only for the larger game,

where deep penetration was absolutely essential, and these animals were seldom killed as quickly as they would have been with high-velocity bullets, which would have literally destroyed their lungs. Many of them just jumped and ran off as if unhit, though they were usually very dead when trailed up. Also, they usually left a very good blood trail.

I have also seen a great deal of game like elk, and even larger, shot with light bullets at very high velocity, and in these cases results were not so good. When struck fairly in the lungs, broadside, the bullets killed in a few minutes, though some of the animals went as much as a quarter of a mile, often leaving very little blood trail, and were very hard to follow up. When the shots were quartering, quite often on running animals, the very-high-velocity bullets usually penetrated but a short distance, and blew up, making wounds that were bad but not deep enough in some cases to reach the heavy bones, or to come near reaching the vitals. The animals often dropped at the shot, but were instantly up and running again, and some of them died a slow and lingering death—or are still going, in spite of the thousands of pounds of muzzle energy credited to these cartridges. Cartridges with larger-caliber, longer, and heavier bullets, at much lower velocity and with less paper energy, would have killed those same animals with the same placing of shots.

The average person, gazing at those thousands of pounds of paper energy, is apt to have some surprises and disillusionments when he gets into the game fields. Knowing that he has a rifle with great paper energy, he is apt to take a chance on his holding, and paunch a heavy animal with a cartridge never intended for such shooting. On the other hand, he may go to the opposite extreme and shoot deer through the lungs with long, heavy bullets of large caliber, and wonder why the deer jumped and ran before falling. Many different things must be taken into consideration in choosing a cartridge for big game.

In *Field and Stream* for November, 1934, Mr. George H. Whiteaker published a formula for comparing the killing power of various cartridges. Instead of figuring the foot-pounds of energy of a given cartridge, he employed the "pounds-feet" of the cartridge. This formula gives one of the most reliable means of comparing the killing power of different cartridges and loads that I have ever seen, excepting only as regards the very-high-velocity, light bullets on thin, light game. To use the formula, write a fraction with the weight of the bullet in grains as the numerator, and the number of grains in a pound (7000) as the denominator. Then multiply this by the velocity of the bullet. Thus, for the .30-'06 cartridge with 150-grain bullet at 3000 foot-seconds: $150 \div 7000 \times 3000$, the result being $64\frac{2}{7}$. Perform the same calculation for the .400 Whelen with 350-grain bullet at 2300 foot-seconds, and you get 115. The .45-120-550 Sharps Buffalo cartridge at 1500 feet velocity works out at 118. The .35 Whelen with either the 250-grain bullet at 2635 feet or the 275-grain bullet at 2300 feet, stacks up around 90. The little Hornet 45-grain bullet at 2600 feet velocity runs slightly over 16. I repeat, that this formula comes nearer to indicating the actual killing power of a cartridge on game than any other I have tried.

Not many people will like this formula, as the figures do not look very large. However, when they shoot at big game, if they will keep these figures in mind instead of the thousands of pounds of kinetic energy, they will be more apt to dwell on their aim and place their shot where it will do the most good.

Many people believe that a figure expressing foot-pounds of energy represents a blow of that weight imparted to the animal struck—assuming that the bullet stops in the animal. If this were the case, would not a creature like a mule deer be blown clear off the mountain when struck with a .375 Magnum? I saw Ben Comfort make just such a shot at 80 yards with the 270-grain bullet in the .375 Magnum, and the deer only jumped and ran off as if unhit, though it was dead when we trailed it up some fifty yards through the brush. As nearly as I can understand paper energy, it represents the force available to destroy animal tissue in the immediate neighborhood of where the bullet strikes, and not a blow of so many thousand pounds—which would certainly knock flat a 200-pound animal. I have seen elk, weighing on the hoof over 1200 pounds, take a shot from a .400 Whelen carrying 4000 foot-pounds of paper energy, and stand perfectly still after the shot; then slowly roll over dead. But they were not "thrown" anywhere, and if this paper energy represented a direct blow or push, would not those animals have at least been knocked off their feet? The only times I have seen game "blown" places, or thrown from the shot, was in the case of small animals like chucks and jack rabbits; also some coyotes when hit with heavy rifles.

This thing we call life is something no one clearly understands. Some animals will die instantly from a shot from almost any rifle, while others will travel a long way with the same identical placing of the bullet. Once any game animal—or man, for that matter—is thoroughly aroused or excited, it is much harder to kill than normally. If big game is shot in a vital area when it does not know of the hunter's presence, it very often goes down and stays down; but wound that same animal in some nonvital place, and you can then often literally tear the vitals out of it with bullets, and it will continue to live for some time. Also, when any animal's anger is thoroughly aroused, it is much harder to kill, and will take punishment that would, under ordinary circumstances, down it at once.

Take the weight of the African lion at 400 pounds. These animals have been shot in the brain when charging, with rifles developing 4000 foot-pounds of paper energy, the bullets penetrating back into the body and stopping in the animal; yet those lions have continued to roll head over heels toward the man who shot them. If this paper energy were really a blow of 4000 pounds imparted to this 400-pound beast, would not the animal have at least had its forward motion stopped? Drop a two-ton weight on the lion, and it would at least have been knocked flat. Therefore, consider other things besides mere foot-pounds of paper energy, when choosing a rifle or cartridge.

Home Gunsmiths Beware

Do not tamper with the serial number on any of your firearms. That number was placed on the gun by the manufacturer as a means of identification in compliance with Federal regulations.

Under the provisions of the Federal Firearms Act of 1938 it is unlawful for any person to "transport, ship, or knowingly receive in interstate or foreign commerce any firearm from which the manufacturer's serial number has been removed, obliterated, or altered, and the possession of any such firearm shall be presumptive evidence that such firearm was transported, shipped, or received, as the case may be, by the possessor in violation of this Act."

Violations of the act may be punished by fines up to \$2,000.00 or imprisonment for five years.

THE GOLDEN BULLETS—1939

McCOY



MEEKS



McCONNAUGHAY



HOFFMAN



GREENE



1938 WILL PROBABLY NEVER be called a banner year when collegiate rifle shooting is spoken of. No single marksman's performance can be pointed out as distinguishing the 1938-1939 selection of All-American honors; there was not this year a successor to Kitch, Navy phenomenon, who graduated in 1938 after having placed All-American for each of this three years of varsity competition; nor did any of the 1937-1938 stars again climb onto top ten roster to rate a second time the award of a golden bullet. But . . .

For the first time since the National Rifle Association instituted the recognition of each season's outstanding college riflemen by the selection of an All-American team and the award of ten symbolic golden bullets to the members of the mythical group, one college has been able to completely steal the show in both the National Shoulder-to-Shoulder Collegiate Championship and All-American divisions. The Navy goat stands head-and-shoulders ahead of the rest after an easy Middie victory over the forty-six college squads that competed for the national intercollegiate title. Navy's lead of an even twenty points outdistanced Carnegie Tech's score at the Annapolis meet; no team at any of the other six regional shoots was able to approach the 1891 tally of the midshipmen.

To determine the Intercollegiate team champions, sectional matches were fired at Manhattan, Kansas, New London, Connecticut, and at Birmingham, Alabama, on March 25 and the following week-end at Annapolis, Berkeley, California, and Champaign, Illinois. Topping the teams firing in the first group of matches shot at Manhattan, Iowa State ran up a lead of fourteen points over their nearest competitor, staying ahead of all of the teams firing at the three points. At New London, New York U. triumphed locally with an 1828 total, while at Alabama, the University of Florida's squad topped the meet with 1807. The final week-end, however, saw Iowa toppled out of lead position by Navy's 1891 total, with Carnegie Tech coming in behind the Middies in the national rating. At Berkeley, San Francisco trailed California, whose riflemen turned in an 1837 tally. At Champaign, the University of Minnesota led the field with 1828, four points up on second place Ohio State U.

A separate individual contest fell to Navy when J. W. McCoy set the pace at Annapolis with a 385. Taylor of California came into place position, three points under McCoy, with Penn State's B. H. Stahl carrying third place honors. J. A. Feldman of Iowa State topped the entries at Manhattan with 376, and at New London, J. D. McCubbin of the Coast Guard shot a 375. McCubbin, incidentally, is the son of the McCubbin known to every small-bore shooter who has attended Perry, where Mac holds forth as Peters representative and labors as the best natured of our range officers. Bill Sanderson of Georgia Tech led at Alabama. At Champaign, Clarence Bulenberg of the State University of Iowa captured the meet with 378. McCoy's high national score paced the field at Annapolis, and Taylor's at Berkeley.

The victory of the Navy team marks the second time in three years that the Middies have taken the National Crown. Last year they were pushed into fourth place, with George Washington taking the lead.

To clinch their dominance of the season, Navy men scored another illustrious first when four of their number were elected to the select All-American rating, securing for Navy a lasting hold on their niche in the rifleman's hall

JACKSON



STILES



BURKHALTER

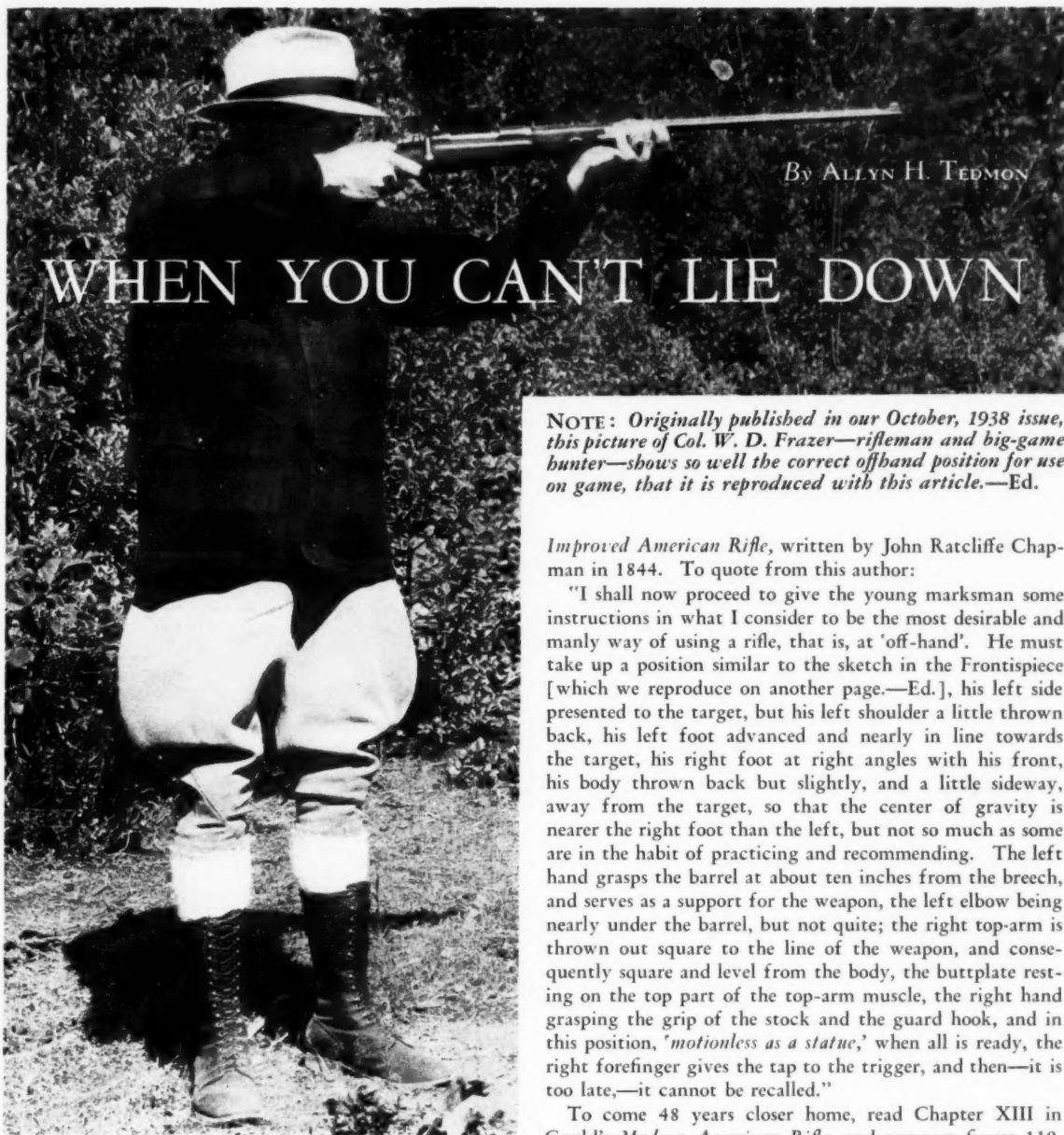


LEWIS



ROPER





By ALLYN H. TEDMON

WHEN YOU CAN'T LIE DOWN

NOTE: Originally published in our October, 1938 issue, this picture of Col. W. D. Frazer—rifleman and big-game hunter—shows so well the correct offhand position for use on game, that it is reproduced with this article.—Ed.

Improved American Rifle, written by John Ratcliffe Chapman in 1844. To quote from this author:

"I shall now proceed to give the young marksman some instructions in what I consider to be the most desirable and manly way of using a rifle, that is, at 'off-hand'. He must take up a position similar to the sketch in the Frontispiece [which we reproduce on another page.—Ed.], his left side presented to the target, but his left shoulder a little thrown back, his left foot advanced and nearly in line towards the target, his right foot at right angles with his front, his body thrown back but slightly, and a little sideways, away from the target, so that the center of gravity is nearer the right foot than the left, but not so much as some are in the habit of practicing and recommending. The left hand grasps the barrel at about ten inches from the breech, and serves as a support for the weapon, the left elbow being nearly under the barrel, but not quite; the right top-arm is thrown out square to the line of the weapon, and consequently square and level from the body, the buttplate resting on the top part of the top-arm muscle, the right hand grasping the grip of the stock and the guard hook, and in this position, 'motionless as a statue,' when all is ready, the right forefinger gives the tap to the trigger, and then—it is too late,—it cannot be recalled."

To come 48 years closer home, read Chapter XIII in Gould's *Modern American Rifle*, and compare figure 119, page 154, with the Chapman illustration. To come right down to 1939, turn to page 18 of the October 1938 issue of *THE AMERICAN RIFLEMAN*, and study the photograph of Lt.-Col. W. D. Frazer in the upper left-hand corner of the page. [This picture is reproduced above.—Ed.]—No, the offhand, or standing, position is not new. It is as old as the rifle. The head is still held well up, not poked forward on the stock like an eager bird dog; the position of the hands and the elbows is the same. We picture the ideal standing position for the hunter and the target shot to pattern after, and to adopt just so far as individual physical makeup will allow.

Offhand is the hardest position to learn, yet at the same time the most important to know. Col. Townsend Whelen, in his book *The American Rifle*, says of offhand: "This is a very important position for the sportsman as it is the position in which he will do 90 per cent of his firing at game." Even though it is the least steady of all positions, offhand is the position generally used for all 50 to 100-yard big-game shots, because it is in about 80 per cent of the cases—the only position possible to use. It is all right to say that one

"IF YOU CAN SHOOT GOOD OFFHAND," said W. L. (Bill) Bruce, one-time world's champion in the prone position, and member of America's International Rifle Team for the years 1927-28-29 and 30, "you can at least shoot as well, or better, in the other positions." Bruce used to be a member of the old Cheyenne (Wyoming) Rifle Club, and back ten years or more ago this outfit was "hot stuff." Their shooting was all offhand, mainly Schuetzen, but for diversion they took on all comers in all four positions. "Our position," said Bruce, "was offhand, whether lying down or standing up. Few of us used slings, and all we did, mainly, was to take off the Schuetzen buttplates. We would come out of the offhand stage with 15 to 20 points per man in the lead, and the match was sewed up. We won every match we ever shot."

Did I hear a young Dewar enthusiast exclaim "Offhand? Something new, ain't it?" No, Reginald, hardly new; in fact it wasn't new 100 years ago. Read page 91 in *The*

should kneel or lie down, but it just can't be done when an old buck jumps up and high-tails it up the gulch. You must take it offhand or not at all!

We hear a lot about using prone for "long-range" shots,—a lot of piffle and blooey except for really trained men, of whom Elmer Keith is a notable example. The average open-sight deer hunter can't hit a deer once at 200 yards (which isn't long-range) to say nothing of twice, from any position; and but few can do it at 150 yards. Wherefore I opine that the average urban breed of big-game hunter, firing from any position, had better save his ammunition when-



One deer from this spot—sage too high for sitting position

ever his 1/16-inch ivory bead spans the deer's neck; for that buck is out of range, at least for that hunter. What these well-meaning scouts need is proper training in at least two positions, for woe betide the poor goof who knows only one position, and that not offhand.

For example: While hunting deer last fall, one of the Colorado Rifle Club's top offhand shots met a young hunter armed with a latest-model rifle. During the conversation it developed that the young man hadn't shot a buck. "Haven't you even seen one?" asked our man for only a blind man would fail to see deer in that country. "Yes, I've seen two bucks," admitted Mr. Inexperience, "but they were both running, and I couldn't find a place to lie down."

Now, when anything, even a good thing like the prone position, has been over-sold to such an extent, it is high time that some of these belly-whackers got up on their feet and learned to shoot offhand. With the above true story in mind, it would be well for some folks not to forget that when lying down (or prone) the field of vision is limited by every weed, bush, or rock that pokes its head a foot above the ground. From sitting you can see over bushes and rocks not more than 2 feet or so high, and from kneeling your line of vision has been raised to around 3 feet. But when you stand on your feet, "like a man," you can aim your rifle over all objects that are only a little less high than

you are; all of which can easily mean the difference between "finding a place to lie down," and taking home a buck.

It is beyond argument that every hunter should assume the steadiest position possible for every shot, in order to make that shot a killing one, and not merely a wounder. However, regardless of where the hunter is stalking, he will have far more use for the standing position than for any other. If he *can* drop down for a braced shot, then I say take it sitting. The sitting position, so far at least as game-shooting is concerned, is about as steady as prone. It is more easily assumed, is more mobile, and many times you can sit down wherever you can stand up.

Deer hunters are supposed to be interested in the perpetuation of their sport, and we all know that to wound a head of game is to reduce the visible supply just that much, with no benefit to anyone. Whenever you hit a buck and let it get away, or shoot a doe and sneak off to leave the poor thing to rot, you are ruining your own fun! In accordance with this idea of good sportsmanship, every big-game hunter should be well trained in both the standing and the sitting positions. Take the snap and close-up shots offhand, but when you attempt a shot at a buck 125 or 150 yards away, sit down if you can.

Offhand rifle shooting should include at least three special positions. First we have the Chapman position, as



For snap-shooting, it's offhand every time

we might call it, generally useful in the field and at the target. Second there is the target position, and this is quite out of place in the hunting field. Here we find the right elbow at all sorts of wild angles, even to what looks like a broken wing, while the left may be back against the ribs or twisted clear over under the north-east corner of the rifle. Third comes the Schuetzen position; and, incidentally, Schuetzen is not Free Rifle, inasmuch as the Schuetzen rifles fired light to medium loads, while Free Rifles are heavy rifles often Schuetzen in design that are built to handle our highly developed military ammunition. This Schuetzen position is

(Continued on page 38)

The Old Coach's Corner

Small Bore Equipment and Methods

SEVERAL DAYS AGO I had a fine letter from a youngster. He and his friends had just organized a rifle club in a small Western city, and were going in for small bore shooting. He wrote that among all the contradictory dope being published in various publications these days he and his friends were having a hard time in deciding what was best. He wanted to know what type of equipment, and what shooting methods were used by the shooters who were winning the big matches. I think this is a most appropriate subject for my Corner this month. The dope I give may not meet with the approval of every fine shot, but nevertheless it is what the vast majority of our best shots are using and doing. I will consider equipment first.

The great majority of matches are being won today with the heavy barrelled Winchester Model 52 rifle with Marksman stock, or with the Remington Model 37 rifle with standard stock, or else with these rifles fitted with special custom barrels made by any of three or four of our best custom barrel makers. It has, however, not been proved that the custom barrel is in any way more accurate on an average than the heavy factory barrels. In proportion to the number of men using them, quite as many matches are being won with straight factory barrels as with custom built barrels.

I must introduce a word of caution here, however. These heavy barrel rifles weigh about 12 pounds. You must be in fine shooting form to hold steady with them, particularly towards the end of a twenty-shot string. It takes shooting, or dry shooting, at least three times a week to get muscles in trim for holding the heavy barrel rifle steady in long matches. The man who can get out to shoot only once a week had better use a standard weight rifle. We have all of us seen standard rifles that would shoot as well as a heavy barrel, but by and large the heavy barrel will shoot more consistently into the X-ring.

Our best shots are using the Marble-Goss, the Vaver, and the Lyman 48 rear sights, all adjustable to quarter minutes. Most are using the extension types of these sights, but if the shooter is one of those who "rides the bolt," the straight receiver sight will probably be best for him. Men with normal eyesight, or eyesight corrected to normal with glasses, should use an .04" aperture.

In front sights the best are the hooded apertures, and the most used are the Redfield, Vaver, and Lyman. The size of the aperture disc used depends entirely on a man's eyesight. It should be of such size that the bull seen through it will appear black, never gray. Usually this will be the largest, or one of the largest, of the discs that accompany the sight. In the last two or three years certain gunsmiths have been bringing out special triggers with a view to improving the trigger pull. We see a lot of these on the rifles of winning shots. I have seen three or four that—"gosh I wish I had them on my rifle!" But I am afraid to send my rifle to the maker for fear that when the trigger came back it would not be as good as the pull now on it. The straight factory pulls are pretty good, and the majority of winners are still using them.

In gunslings the best is the regular Army gunsling (Model 1907), softened by rubbing a light coat of Neatsfoot oil on it about twice a year. It is a decided advantage also to have a sponge rubber or sheepskin pad on the portion of the sling loop that contacts the back of the left upper arm. A shooting glove and a good shooting coat are both necessities.

In the matter of telescope sights, for prone shooting the best of our shots are using Lyman, Fecker, and Unertl scopes of 10 to 16 power, with enlarged objectives, and with the next-to-finest cross-hairs, and also of course with Fecker or Lyman quarter minute click mounts. One great advantage of the higher powers with enlarged objectives is that one can use them as a spotting scope, and thus he does not have to get out of position to spot his shots throughout his string. Anything that will prevent the least variation in the firing position from shot to shot is an advantage. A lens shade (usually extemporized) for the objective lens is very desirable for shooting when the sun gets around back of the target.

These high power scopes are no good at all for offhand shooting, the preferred scopes for this use being the Fecker or Unertl small game scopes of 4 power, also with the next to finest cross-hairs, and Lyman or Fecker quarter minute click mounts. These should have 18" tubes so they will fit interchangeably on the blocks of the higher power scopes. Blocks should be 7.2" apart, center to center.

In every case something should be done to raise the comb of the stock when a scope is used. In most cases even the high combs of the Marksman and the Model 37 stocks are not quite high enough to permit of really steady holding and aiming with a scope. A very convenient way to raise the comb is to place a Jostam or Stam cheek pad on the stock.

Do not take the rifle out of its stock, or disturb the tension of the front band. So long as the rifle is shooting well, leave these exactly as they came from the factory. The rifle has been bedded, and the front band tension adjusted at the factory while targeting the rifle, and it is best to leave them strictly alone.

Now we come to ammunition. You cannot tell what make of ammunition will shoot best in your rifle until you make a thorough test of all worthwhile makes. One very celebrated make may shoot quite steadily into the X-ring in your rifle, and another equally celebrated may just barely hold the 10-ring. You have to make this ammunition test yourself, either shooting prone or from a padded bench rest. You cannot tell a thing by shooting only one or two groups of ten shots each. You ought to shoot at least five groups, and much better ten groups of 10 shots each with each make of ammunition. At least two or three of these groups should be shot in windy weather to see how the cartridge performs in the wind. The rifle should always be warmed and fouled by shooting 5 to 10 shots through it before starting record groups.

The most important thing of all in the equipment, considering the above equipment that the experts are using, is this matter of selection of the particular ammunition which will shoot best in *your* rifle. One cartridge will give you a season's average of two or three points higher or lower than another, so do not neglect it. There are a great many shooters who would rank up among the very best were it not for their being handicapped in their ammunition. Some shooters are prejudiced in favor of one make of rifle and ammunition. The only kind of prejudice that will get you up among the winners is that based on a most careful and thorough test. In the matter of ammunition this test should be made each year, for a make which one year may shoot splendidly in your rifle, the next year may be, and usually is, slightly changed, and it may shoot slightly better, or not nearly so well.

Lastly we come to spotting scopes. There are a lot of older scopes that will spot really well. If you have one of these you probably don't need a new scope. In modern scopes I should say that the cheapest one that will surely be good and that will spot well is the Bausch & Lomb Drawtube. Lots of good shooters are using it. Among the real experts the Bausch & Lomb Prismatic is one of the most popular, and the Fecker probably just as good. There are half a dozen scope stands that are entirely satisfactory, among which the Freeland is probably as popular as any.

Now we come to the shooting methods used by our best small bore shots. I will first of all talk about prone shooting. In the morning, before starting out for the range, the expert wipes all oil or grease from the bore of his rifle, and if his rear sight cup disc tends to glisten at all in the sun he smokes that, and clears both apertures with a broom straw or a blade of grass. If he is going to shoot with his scope he places that on his rifle, taking care to screw the mounts on the blocks with just the right tension, always using the same thing to screw them up with, preferably a penny.

As I said before in one of my "Corners" your expert gets to the range ten or fifteen minutes before it is time for him to shoot. He sits down behind his firing point, looks at the weather, sets his sights for elevation and windage, checks these settings, loosens up his gunsling, puts his spotting scope on its stand and focuses it, makes his entries in his score book, and then waits to be called to the firing point. He would much rather not be talked to or bothered during this time. Then when called he "strolls" quietly up to the firing point, selects smooth, level spots for his elbows and body to lie on, slowly lies down, puts his sling on his arm, adjusts it properly on the left upper arm with the pad arranged to cushion the sling, and assumes the prone position. Then he sets up his spotting scope to the left of his rifle, and with the eyepiece where, by just slightly turning his head to the left, he can see through it with the minimum disturbance of his firing position (very important); and he sees that the scope is trained and properly focused on his target. Next he gets into firing position again and sees that his position is *entirely* steady and comfortable (*most important of all*). Then he lets go of the rifle with his left hand, lowers the forearm into his forked rifle rest, and awaits the command to start firing the fouling and warming shots.

It is the consensus of opinion that it is best to shoot five fouling and warming shots if one is using a standard barrel rifle, and eight to ten if you are using a heavy barrel rifle. Shots from a cold barrel usually fly high, about nine's at 12 o'clock, and the rifle does not steady down to consistent shooting until it has been warmed up.

Now the most important thing to remember is not to change the position of the left elbow. In fact, don't lift it out of its spot on the ground throughout your entire string. If you lift or change that left elbow it almost always means that you will go out for a nine—or worse. If you are using a spotting scope be sure that it is so located that you can see through it by merely turning your head a little to the left, and that it won't be necessary to raise your left elbow to see through it. A high power, big objective telescope sight is a help here as you can use it for spotting; also such a scope helps you to keep easily within your time limit which is at the rate of 10 shots in 7½ minutes. In your practice try to shoot at the rate of 10 shots in 6 minutes, then you will have no trouble in competitions.

Everything must be uniform from shot to shot. Change anything, and out you go for a nine. Look out for the tension on the gunsling—don't vary it. Variations often come from the sling slipping down on the arm—keep it up close to the arm-pit. Most of our best shots agree in saying

that they think they are placing from 12 to 20 pounds tension in the sling—that is, one man may say 12, and another that he thinks his uniform tension is about 20 pounds. As a general rule "equalizers" have not proved of any advantage, but some favor them.

Always be watching out for a change of wind. If you get a change of wind, and you have been shooting at a rate of 10 shots in 6 minutes you will have time to turn your scope on the targets to your right or left and see if others have gone out, and how much, and this may help you. Watch also how your group is forming on the target, and if it is decidedly in any direction don't hesitate to change your sight a click or so.

Perhaps most of all your score is going to depend on whether you had a thoroughly comfortable position at the start, and maintained it without change throughout.

A score of 99 prone is a first rate yearly average. In fact, it might be said that the men who are winning the big matches are those who are making an average of 99 to 99.5, and who on the day of the match happen to be shooting in their best form and condition, or who strike luck. A score of 99 may not get you into the prize money, but if you have been averaging that in practice for a month or so, then that, plus shooting in your top form that particular day, and perhaps plus a little luck, is what lands you in the winners with a score of 100 plus a lot of X's.

The best equipment, plus the methods of our best shots, won't bring a tyro up to a prone average of 99 right away. To reach such an average requires a lot of painstaking practice at least once a week, better twice or three times a week. Then towards the end of the first season he may perhaps reach this average. I think most men can reach 99 in a season if they put their minds to it. It is entirely conceivable that an ambitious youngster shooting under a good coach may reach this average in two months. Of course, a few are so constituted physically, mentally, and temperamentally that they never will make fine shots.

A lot of clubs are now shooting the three positions, ten shots standing (military position, left upper arm not touching the side), ten kneeling, and ten prone. Much gallery shooting is in these three positions. A first class score standing is anything over 85. To bring their average up to that, or close to it, most men have to practice at least three times a week for a year. There is no royal or quick road to good offhand shooting. It means a lot of work and study. But in three position matches you can do more to better your score or your team's score by specializing on offhand shooting than in any other way. We will say in a three position match very fine scores are 85 offhand, 95 kneeling, and 99 prone, or a total of say 275 for the three positions. No matter how much you try you can only better your prone score 1 point, but you have a chance to better your offhand score a lot more. If you could just turn in a 90 or a 92 prone you could probably win your match for your team. For this reason, if a team is shooting the three positions in the gallery during the winter they should have a rule that on the outdoor range every man should shoot at least ten shots a week offhand at 50 yards. A club or an individual who does this is pretty certain to raise the offhand average considerably in the next gallery season. Don't attempt the high power scope offhand—use about a 4-power scope.

When you leave the firing point always sit down back of the line and then and there note in your score book all those things that will help you to equal or better your score next time. The principal things to make a record of are the ammunition you used, the weather conditions, particularly the wind, and your sight adjustment which proved exactly cor-

rect for the weather condition. Of course, note anything else that might be helpful, particularly any error or mistake you made, which will keep you from making it again.

Cleaning? Yes, most decidedly so. The majority of our best shots always clean after the end of the day's match. If you are shooting Lesmok ammunition always clean at the end of every 40 rounds or at the end of a score, to preserve accuracy. This cleaning is as much to keep your rifle shooting with its finest accuracy as it is to keep it from rusting. Fouling does accumulate, faster with Lesmok than with smokeless powder. And as for rusting, if a rifle fired with Lesmok powder is left overnight without cleaning, it will rust. You may not be able to see one evening's rust, but in a dozen evenings or so the rust can be seen, and the gilt edge of a good barrel is probably gone.

Don't believe everything that a fine shot tells you. Almost every fine shot is a crank. Particularly he has some cranky notion about some one or two things. Also probably he shoots well despite these one or two crank notions, and would shoot still better if he did not have them. But having them, it probably sets his mind at rest to observe them, and in that way only might they be of any advantage to him. If you come across any of these crank notions, and you think perhaps they might help you, give them a good, honest, impartial trial. Don't adopt them unless they better your scores. The equipment and methods I have given above are those used by the vast majority of our best small bore shooters. Better not "go agin 'em."

In checking the above over I see I have neglected to say anything about shooting glasses. If you have to use glasses to correct your vision, then these had best be of the shooting type, made on your oculist's prescription by a good optician, and the lenses should be large, and of the "toric" type,

which means lenses ground so that they have the same correction at the edge of the lens as in the center. If you have normal eyes that do not tire easily it is doubtful if glasses will help you a bit, but if they get strained in very bright lights then colored glasses may help you under those conditions. We think the best color is a yellow-green shade, like the Bausch & Lomb RAY-BAN. Aside from this, shooting glasses are an eye insurance. It seldom happens that a cartridge bursts at the head and flashes gas and metal to the rear, but it can happen with anyone, and glasses are an almost perfect protection to the eyes in such a case.

I wish to make it clear that the above notes on equipment pertain to that which is usually necessary if you are ambitious to get up into the ranks of those who win the big matches at Camp Perry, Camp Ritchie, St. Petersburg, and other of the large competitions. There is, of course, other less expensive, but still quite satisfactory, equipment. Generally speaking it may be said that the following rifles are so good that they will tax the skill of almost any shooter to bring out their capabilities with good ammunition: Savage Model 19, Stevens No. 417, and Winchester Model 75. The standard iron sights on these rifles are also satisfactory. Any of the scopes of four power or over made by Lyman, Fecker, and Unertl, and always equipped with quarter minute click micrometer mounts, will also be entirely suitable to enable you to compete in small bore shooting with good prospects of success. But I started out with the presumption that I was going to tell you the equipment and methods needed to forge into the absolutely *top rank* of small bore shooters, and I hope that this will be helpful. At the same time you can do most profitable and very fine shooting with slightly less expensive articles.

RULE CHANGES

CERTAIN N. R. A. PISTOL AND REVOLVER Rule changes have been approved and are to go into effect June 1st, 1939. The more important of these changes are published below for the information of competitors who may be attending tournaments before they have an opportunity to obtain a copy of the new Rule Book.

No changes have been made in the Small Bore or High Power Rifle Rules, but several have been suggested and will be discussed at the next Executive Committee meeting. The most important suggestions would prohibit the use of metal articles in connection with elbow pads on shooting coats and would provide a means of clarifying the legality of the low prone position taken by some small bore riflemen.

Changes in Pistol Rules

9-17. Slow Fire: The time limit is one minute per shot at 50-yards, 20-yards and 50-feet. At 25-yards the slow-fire limit is one-half minute per shot in all matches open to allcomers;—in Tyro, Restricted and other special class matches, the 25-yard slow-fire time limit is one minute per shot.

9-28. When a competitor claims inability to complete his score within the time limit because of stoppage of fire by Range Officer, a defective cartridge or disabled piece, the Range Officer, if satisfied that conditions are as claimed by the competitor will:

(a) if in slow-fire, allow additional time, not to exceed the time limit for the distance being fired, as shown by these rules, for each shot remaining unfired.

(b) if in timed or rapid-fire, permit the competitor to refire a complete string as soon as may be practicable.

No competitor will refire any record string more than once in any match because of a defective cartridge or disabled piece. Such shots as may have been fired in the original string will not be marked or scored. (See rule 10-6.)

Add to 10-1. In case of keyhole, tipping or skid shots, the value shall in no case exceed the value of one ring higher than the first point of bullet impact with the paper.

10-2. Targets may be scored after each ten shots at 50-yards. At all ranges shorter than 50-yards, targets shall be scored after each five shots.

Add to 10-6. (b) if the competitor wishes to accept a score equal to the required number of hits of lowest value, he shall be allowed to do so.

Add to 10-10. At rapid or timed fire, in the case of such accidental moving of the target a complete new string may be fired. Any competitor who wishes to accept his score shall not be required to refire.

New in Glossary Section

Entry—The act of declaring intent to shoot in a match and the paying of the required fee to the proper official. A competitor may, if he desires, state on his entry for any match or matches that he is not competing for money prizes, or medals, or trophies. The score of a competitor so entered is shown on the bulletin in the proper place and in the case of Registered Tournaments the competitor is given proper credit on the annual National Average Lists but he is not awarded any prize his score otherwise would entitle him to receive.

DOUBLE-ACTION SHOOTING

By WALTER F. ROPER

NOTE: A few persons may object to this article on the grounds that it is "commercial" since it includes a discussion of special revolver stocks, and is written by a man who does a side-line business in such stocks. But were we to pass up every article in which someone might see—or imagine—a possible commercial hook-up, our readers would be denied much valuable information.—Ed.

LIKE MOST HANDGUN SHOOTERS, I have long considered double-action revolver shooting as a waste of time and ammunition. My conclusion was based upon the results obtained in numerous trials, and I couldn't see how anyone could possibly hit anything when using a gun in that way. Then one day, about a year ago, I met a chap who proved that I was all wrong; and I believe that if he had time to practice, George Van Train would give the topmost top-notchers a real run for their money in time and rapid fire, and do it double-action! All of which suggests that it is still poor policy to say that a thing can't be done.

Naturally I figured that George had something special on the ball that let him control his S&W Magnum the way he did, and I soon found out what it was. George has an abnormally long trigger finger; in fact it is so long that with the trigger in the crease of the first joint, the end of the finger provides a perfect stop for the motion of the trigger by bringing up against the back edge of the trigger guard just before the trigger reaches the let-off point. That, plus the fact that he has developed a perfect straight-back pull, lets him shoot without that score-wrecking side jump that makes decent double-action shooting out of the question for most of us.

Being naturally curious about anything concerning handguns, I determined to see if I could do the trick as he did it, and not having the long trigger finger, I did the next best thing and moved forward the point against which the tip of the finger stopped, by making a pair of stocks with an extension on them for that purpose. Considerable thought convinced me that if any decent shooting was to be done, I must completely eliminate any sidewise pressure on the trigger, and also make the stocks so that the recoil would be

perfectly resisted in order that the gun would not shift in my hand at all when recoil occurred. I didn't have a Magnum, but my old New Century Model seemed to work about the same, so I fitted the new stocks to that gun; and with some misgivings I took it to the indoor range one afternoon, taking George along as a witness of what I felt would be just another proof that double-action shooting was at best a rather poor substitute for thumbing the hammer for each shot.

Well, in spite of the healthy kick of that husky .44 Special load, I put my first five shots into the bull of the 20-yard rapid-fire target in fifteen seconds, and repeated the performance twice just to prove to myself that it wasn't a fluke. Then I put the gun away until I could try it on the outdoor range; because after all, a .44 Special is a bit noisy on an indoor range, and besides, I wanted to develop a little muscle in that hand. For it becomes a bit tiresome pulling some 10 pounds over and over.

Dry snapping double-action taught me a method of getting the necessary straight-back pressure on the trigger that I am sure will be of interest to inquisitive shooters, and that is really the reason for this account of my straying from the "true faith" (single-action shooting). That straight-to-the rear pressure is absolutely necessary with the heavy pull, and to get it I found that for me the best scheme was to simply hook the trigger finger around the trigger, bending the finger at the first joint as much as possible, then pull back until the end of the finger stops against the extension on the stock. To get the final let-off pressure, just straighten out the bend in the first joint of the finger. For with the end of the finger against the stop on the stock, this straightening-out process assures a straight-back pres-

Double-action stocks as I like them



sure on the trigger; and when let-off is accomplished in this way, the gun doesn't jump to the side at all.

A little practice with this method of getting release suggested the idea that it should also help in getting a more perfect pull when shooting slow-fire single-action. That is just what I found when I tried it, and the same thing has been reported by several other shooters; in fact they remarked that the double-action stocks were even better for single-action. Actually I didn't do much practicing with the gun before giving it a try on the outdoor range, for I found that I could pull the hammer back as fast as I wanted to without any danger of having it fall before coming to a definite stop, and the final squeeze was then almost as easy as when shooting single-action; although of course the heavy pull is bound to be a bit more difficult than one of the usual weight. However, for some purposes such a pull might very easily be a real advantage.

Time and rapid fire are of course increasingly difficult as the kick and movement of the gun is increased. It is a lot easier to shoot with a Woodsman with a weighted barrel than with a .38 revolver, and it is decidedly easier with a .38 than with a .44 Special; but to make my tests mean anything I had to shoot them all with the .44, first using the gun single-action, and then shooting it double-action. I fired five time-fire scores for an average of 88, and five rapid for an average of 84, all single-action, which for this big brute of a gun is all I could hope for. Actually it was easier to fire the gun double-action, for then the position of the hand on the stock never changes, and there is no chance of having the hammer slip from under the thumb as in single-action cocking. The scores were a real surprise, and prove that if one will practice this kind of shooting with a gun fitted up for the job, scores equal to those of single-action shooting should be possible. The average of my five time-fire strings was 90, and the average of the five rapid-fire scores was 88.

Just about the time I had finished this shooting I received a letter from my friend Lieutenant McDaniel of Enid, Oklahoma, in which he said that he had a new Magnum on which the double-action was so light that he thought he could shoot it double-action. The stocks I had been trying

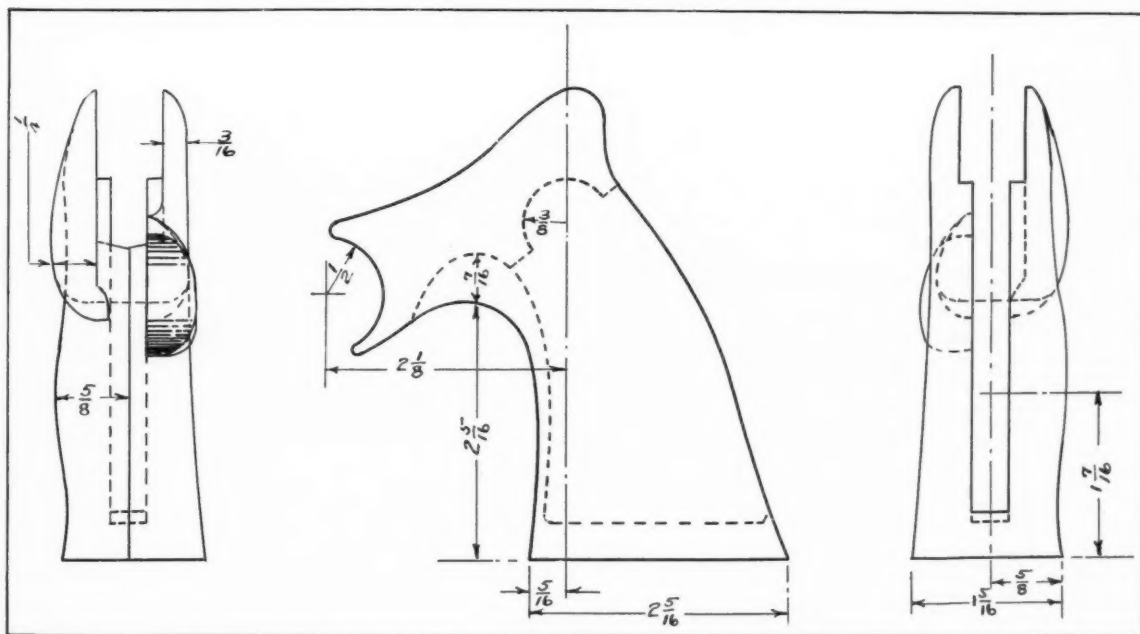
went to him in the next mail, with a note telling him how I used them, and a request that he give them a trial and let me know how he scored. His trip to Camp Perry delayed his reply, but I finally received his report, from which I quote as follows:

"I am enclosing a target showing the result of my last effort over the N. M. Course using double-action in the time and rapid-fire stages—a pleasant surprise. That 270 is the best I have ever done and practice should close up even that group considerably. The stocks are just about perfect for me, not only in double-action but also for single-action slow-fire. I certainly like that trigger stop as it permits a sort of slow-fire technique to be used in time and rapid, for after the trigger is pulled back to the stop rapidly, the final let-off is obtained by a gentle squeeze that is under control at all times. It sure is simple. No thumb slipping, no change of grip. I have more faith and interest in my revolver than ever before.

"I believe that most of the double-action shooting will be done by beginners like myself. I never liked all that thumb wheeling business and usually managed to muff it during a rapid-fire string. That was a mighty interesting article by W. E. Peterson called 'We Shoot Double Action' in the October RIFLEMAN. I notice that he agrees with you on the low position for the thumb but I guess it's a matter of personal preference. I think you have him bested however with that finger stop for that makes a really controlled let-off possible and it is very easy to learn; and besides, the stock that makes that possible also improves the single-action slow-fire shooting. I feel positive the scheme will interest a lot of shooters. It is so simple to just put the new stocks on and go ahead; no tinkering with the gun needed, the stocks do the whole job."

The rest of the story can best be summed up by the familiar expressed "so what?" for personally I can't see any of the chaps who make 97's and better in time and rapid when using a revolver single-action, ever giving double-action a trial—at least in matches where single-action is allowed. Yet, if as seems possible good shooting can be done double-action, and the gun can be easily fitted up to do it, it would seem to be *the* kind of shooting for a

Form and dimensions of stocks for a hand like mine



police officer or for anyone else who has to shoot *quick*, and hit. I can't imagine an officer ever using the procedure proper on the target range when engaged in a gun-fight; although, I am glad to say, I have had no experience in such matters. If, however, a match were provided in which only double-action were allowed, I believe the scores would show that for time and rapid fire, double-action really has great possibilities.

So far as the special stocks are concerned, there are several fine stock-makers who can produce them; or the shooter can probably rig up something himself with which to try out the proposition. However, it has been my experience that apparatus built for an experiment often renders real results impossible by being so slipshod that it doesn't really give the thing a chance; so if you decide to give this double-action shooting a trial, make the stocks right so that your results can be conclusive.

If you want to try making a pair of stocks, the pictures and drawing will give you a good idea of how mine look. Remember that these are for a hand taking a size 8 glove, and which might be called average in thickness. Leave the extension a bit longer than seems correct when you rough the stocks out, as it is easier to take off a little than to add on. I'd recommend using that concave curve on the front strap, and that bulge for the center of the palm. They both help in keeping the gun from shifting when recoil occurs. Also make the stocks of such a thickness as will let the heel of your hand go around past the center line of the gun at the rear, as that puts the support in the right place to prevent the gun from twisting out of the grasp when the kick comes.

Now just a suggestion for your first trial. It's worthwhile because it eliminates one cause of poor shooting, and

gives the thing under test a chance to show something. Just put the target up back-side toward you, and in sighting simply guess where your regular aiming point is. Line up the sights carefully with each other, and bring your *bent* trigger finger back rather fast until its end brings up against the stop, then straighten out the bend in it. Don't fuss with it, and don't worry if you shoot your time-fire in ten seconds instead of twenty; but as you hope for good results, remember to pull straight back. It is rather hard to do anything else if the stocks are right, but nevertheless keep that straight-back pull in mind.

And now for a suggestion for a match that will bring out the possibilities of double-action shooting. I believe it should reward a quick first shot that hits, for after all if we are going to consider practical shooting, that is the shot that should do the business. The guns should be pointed upward at an angle of about 45 degrees until the word is given to fire, and the time should start with that word. None of that lining-up of the gun for a couple of seconds before the target comes around! I believe that 10 seconds is ample for five shots, and I'd like to see a separate bull for the first shot, as I'd give that shot just twice the value of each of the four others.

It's the most important shot in this kind of shooting, so why not?

Just two more things: First, don't try reducing the main spring of your revolver to make double-action easier, because you will make the gun misfire, and if you are going in for double-action, consider it as practical shooting and learn to do it with a gun that is perfectly dependable. Second—and here is the final recommendation for the double-action match, no alibis, for any reason whatsoever!

BLUING SMALL PARTS

H. VITTINGHOFF

THERE ARE MANY formulas available which are devised to enable the amateur to impart a deep, rich, black color to steel parts. Most of these formulas, from a chemist's point of view, are the weirdest concoctions of heterogeneous chemicals, and the only reason why the ingredients do not include extract of frogs' feet and a decoction of newts' livers is because the gullibility of the innocent public would not quite stand this strain. But even such perfectly reliable formulas as those by Baker and Howe sometimes do not give the desired results, particularly when the parts to be blued are small or light in weight and do not hold the required temperature while the bluing is being applied. Very frequently the result, instead of a rich black, is a foxy red, and this is true even of heavy parts made of certain types of steel.

One way of bluing sights and screws is to immerse such small parts in a molten mixture of sodium and/or potassium nitrate with a little manganese dioxide, the bath to be maintained at about 600° F. This method is usually successful, but even here reddish tones are sometimes obtained, and furthermore the procedure is a little dangerous on account of the high temperatures involved. It is certainly not wise to spill the contents of the crucible on the worker's hands or an oilcloth-covered table.

A perfectly simple method is available, and it is a wonder it has not heretofore been more widely recommended. The bath is prepared by taking two tablespoonfuls of ordinary lye, one teaspoonful of soda niter, and two tablespoonfuls

of water, mixed together in a one-piece tin cup (a nickel crucible would be ideal), and just brought to a boil at a temperature of between 285° F. and 300° F. There is no need of checking the temperature providing the worker does not let too much water boil away—hence the flame should be kept low so that the mixture just simmers. (And don't add water while the bath is anywhere near these temperatures.) An immersion of between 3 and 10 minutes in this solution will result invariably in a beautiful bluish black firmly-adhering finish, and even soldered parts will not separate from each other.

One firm of gunsmiths uses this method for bluing barrels and receivers, in which case lime is added to the required large bulk of solution in order to preserve it; but the amateur had better throw the mixture away and make a fresh solution for each use. Incidentally, it is to be questioned if this method is really safe for gun barrels, in view of the experiences with "caustic embrittlement" of boiler tubes which occurs when the feed water of a boiler is alkaline.

The charm of the hot lye method is that it is so simple, and the ingredients of the mixture are so readily purchased. One can get the lye in any corner grocery store, and even a modern drug store will furnish soda niter—it can be purchased at that little counter to the right of the bar where you buy banana splits, and to the left of the place where the electric toasters and vermilion-enameled teapots are sold.

HEAVY HANDGUN BULLETS

A DOPE BAG REVIEW

THE BRITISH APPARENTLY BELIEVE in delivering with their Service revolvers a heavy blow rather than a swift one. Their .455 Man-Stopper load is an example. A flat-end hollow-nose and hollow-base soft-lead bullet of about 219 grains weight, with a diameter of .457-inch, is delivered from the gun muzzle at 800 f.-s. velocity, to develop a muzzle-energy of 288 ft.-lbs. corresponding to that of our milder .45 Colt smokeless load with its 250-grain bullet. Colonel Hatcher gives the latter cartridge an estimated stopping power of 68.4 (relative figure), against 73 for the English Man-Stopper.

In this connection the old .476 Eley is interesting, with its .474-inch hollow-base lead bullet of 288 grains weight, and charge of 18 grains of black powder. The m.v. is given as 729 f.-s., against 720 f.-s. for the .45 Colt mentioned above. The .476 had 340 ft.-lbs. of muzzle energy, and Hatcher's relative figure for the stopping power of its flat-nose conical-point bullet is 83, which tops the list.

The British development of a heavy, slow-moving bullet in .38 caliber inspired our own .38 Super Police and .38 Special Super Police cartridges for police service revolvers. The latter load has a 200-grain blunt-nose lead bullet of .355-inch diameter, with an m.v. of 725 f.-s. in a 6-inch barrel—about the same as that of the .45 Colt already mentioned. However, the m.e. of this 200-grain bullet is only 246 ft.-lbs., and Hatcher's stopping-power figure for it is only 36.3, which is 6.3 above that of the .38 A. C. P.

For handloading we have such heavy bullets as the 173-grain flat-nose Ideal-Keith (No. 358429) in .38 Special caliber, as well as heavier round-nose designs (for .35-caliber rifles) which weigh about 200 grains. In factory loads Western quotes their 200-grain Super Police bullet in the .38 Special case at 775 f.-s. and 266 ft.-lbs., from a 6-inch barrel, while Peters quotes their similar load at 750 f.-s. and 250 ft.-lbs.

Gordon C. Boser has noted the gain in shocking effect on woodchucks from large, heavy bullets as compared to smaller and lighter, but swifter, bullets. One of Boser's most formidable game loads is a 300-grain lead bullet in the .45 Colt, backed by 8.5 grains of Hercules Unique. This is the .45-60 bullet sized down to .454-inch. This load develops a comparatively low velocity, and Boser considers it easier on his Single Action Colt than other heavy loads in this and other calibers. Of course the recoil is heavy with that 300-grain slug of lead. This load has proven effective on paunch shots, being capable of anchoring woodchucks no matter where they are hit in the body. Although it does not tear tissue as high-velocity loads in other handgun calibers do, the 300-grain bullet has proven as reliable on paunch hits as the high-velocity bullets are on chest-cavity hits.

Recently Boser made a comparison test, on a block of maple, of this big bullet and two other extreme loads, all from 5½-inch S. A. Colt revolvers. One load was the 156-grain Ideal bullet No. 357446 and 15.5 grains of Hercules No. 2400 in the .357 Magnum case, which penetrated to a depth of 3¾ inches, and moved the heavy maple block but did not topple it. Another was the 200-grain Ideal bullet No. 42498 and 23.5 grains of No. 2400 powder in the .44-40 case, which penetrated to 2¾ inches without toppling the maple block, but rocking it. The slow-moving

300-grain load in the .45 Colt case knocked the block over as if by a sledge-hammer blow. This chunk of seasoned maple was 2 feet long, a foot wide, and 10 inches thick. The odd thing, however, is that the slower 300-grain blunt-nose bullet penetrated to 4¾ inches.

We have the recovered bullets, and find that the .45 Colt bullet lost only 5 grains of weight. The .44-40 bullet lost 11.5 grains. The .357 Magnum bullet lost 62 grains, which shows how it expended its tremendous kinetic (velocity) energy in penetrating to a depth of 3¾ inches. This last handload must have developed fully 1360 f.-s. velocity in the 5½-inch barrel, and over 650 ft.-lbs. of energy at the muzzle. The .44-40 load probably developed 1270 f.-s. and 716 ft.-lbs., at the muzzle. The velocity of the .45 Colt load would be about 880 f.-s. at the muzzle (5½-inch barrel), with an energy figure of 513 ft.-lbs. These are our own estimates.

For the benefit of those who are interested in comparative penetrations, we will give some additional dope obtained from Boser's tests on maple. We have just received four recovered 255-grain .45 Colt bullets. No. 1 penetrated to 3½ inches, and is only slightly deformed. It weighs 254.2 grains, and was driven by 6.6 grains of Hercules Bullseye. No. 2 penetrated to 3¾ inches, and its nose is flattened and greatly deformed. It weighs 253.2 grains, and was driven by 20.5 grains of Hercules No. 2400. No. 3 went in 3½ inches, and the whole bullet is flattened to a diameter of 7/8-inch. It weighs 252.4 grains. This one had a duplex load of 3.0 grains of Bullseye, a cellophane separator, and then 16.5 grains of No. 2400 on top. As compared with the straight load of No. 2400, this combination load gave a greater recoil effect and as much blast and report, but less pressure sign. This same load also penetrated 1/8-inch boiler plate, and the recovered bullet is crumpled into a ragged ball. It weighs 190.8 grains.

It will be noted that the heavier bullets lost little weight even when they upset considerably. They lost less as compared with smaller and lighter bullets even when penetrating as much or more wood. But not so in metal, where the opposite might be true. The 255-grain just mentioned is the old familiar Ideal .45 Colt bullet No. 454190. With it in my own Single Action Colt, twenty years ago, I was getting 3-inch, 3¼-inch, and 3½-inch groups at fifty yards, using heavy loads of Bullseye. In his loads Boser seated this bullet to a depth of .425-inch in new Western cases, and used W. R. A. No. 111 primers.

Even in new cases these are maximum loads, but not extreme ones. The charge of No. 6 powder could be increased as much as ½-grain in some guns, but not safely in others. Similarly, the charge of No. 2400 could probably be increased a grain. The combination load is an uncertain quantity, and without the cellophane separator the priming charge of Bullseye might increase the burning rate of the major charge of No. 2400 to a dangerous degree. Properly loaded and kept unmixed, this is not at all an excessive load. In fact it probably develops equal velocity at less pressure by sustaining pressures longer. This changes the nature of the gun recoil, and it also serves to burn the 16.5-grain charge of No. 2400 more cleanly than burns the straight load of 20.5 grains of the same powder.

HOW GUNS ARE MADE

By A. P. CURTIS

IN AMERICA, rifle and shotgun barrels are produced from the raw material by two methods: hot-forging and drawing, and cutting from bars of special steel. In either case, the special-analysis steel—usually made by the Bessemer process—is received from the mills in the form of round bars of a length suitable to cut into the rough length of several barrels with the minimum amount of waste or “short ends,” and of sufficient diameter to allow for subsequent shaping and steel-removing operations.

In the case of a forged barrel (Figure 1), more allowance has to be made for the upsetting and hot-rolling or “tapering” operations, than if the barrel were cut from the bar and then turned to shape.

In Figure 1, the barrels in the foreground are for single-barreled shotguns, and have had one end “gathered” or upset while hot in an AJAX machine (sometimes referred to as a “bull-dozer”). Then this “gathered” or increased diameter is forged, while hot, to the form of the barrel’s lug and breech contour, and the “flash” trimmed off.

The next operation is to hot-draw or taper the forward part. This is usually done with a Bradley hammer having a three-grooved die installed in the bed, the hammer carrying a similar die. As the hammer descends on the hot barrel, the diameter of the barrel is reduced to that of the grooves; and as each set of grooves used is smaller than the last, the barrel forging is tapered and elongated. In the illustration, the barrel forgings standing on end have been “drawn” to the correct rough length and taper.

After the barrel forgings have been through an acid pickling bath to remove the “scale” or oxidization, and have been straightened and “necked-down” on the breech end so as to fit a drill bushing installed in the drilling machine, they are ready to have the bores drilled.

A more simple process is used in making rifle barrels. First, the bars of steel are cut into the rough lengths of finished barrels, then they are straightened and “necked” or turned down on one end to fit the drill bushing, the upsetting and forging of the breech end being unnecessary.

Barrel-Bore Drilling

Figure 2 illustrates the most popular barrel-drilling machine ever built. It is in use by the majority of our manufacturers on both shotgun and rifle barrels. It has two barrel-holding heads, and can drill two barrels at one time; and of late years this machine has become popular with automobile manufacturers for drilling holes in parts made of alloy steel, to reduce weight.

For years the Winchester Repeating Arms Company have used single-head, upright barrel-drilling machines designed by one of their mechanics, named Mason. The Iver Johnson Arms & Cycle Works uses the same machine except that it is belt-driven instead of having individual-motor drive. In this plant the machine is used for drilling revolver barrels, and it had been in use for more than twenty years before the Winchester machines were built. I mention this simply to show how very little machine-tool advantage any one manufacturer can have in an art as old as arms-making. It is interesting to note, however, that Iver Johnson used a number of the machines illustrated in Figure 2 for drilling their single and double shotgun barrel tubes.

The barrel-holding “head stock” spindles into which the

muzzles of barrels are clamped, with their “necked-down” breech ends journaled in drill bushings mounted in the adjustable rests shown at the center of the machine, revolve the barrels at a speed of from 2200 to 2800 revolutions per minute, depending upon the size of bore and type of steel used. In this case the work revolves and the drill is stationary—just the reverse of all other drilling operations in manufacturing arms, where the part is at rest and the drill rotates.

The drill tips and shanks (Figure 3) are held rigidly in the “tail stocks,” with the tip guided by the same drill bushing that acts as a “rest” for the breech end of the barrel; and these tail stocks and drills are automatically fed to the barrels, at the rate of approximately 2 inches per minute in the case of .22-caliber rifle barrels. Thus the drill cuts its way through a 24-inch barrel in approximately twelve minutes. Less speed and feed are desirable in the larger-bore rifle barrels, and shotgun barrels.

It will be noted that there is a hole drilled through the hardened and ground drill “tip” (Figure 3). This hole is in line with the tubular steel shank, into which the tip is brazed or hard-soldered. The purpose of the hollow shank and the hole in drill tip is to conduct oil—under pressure of from 500 to 600 pounds per square inch—directly to the cutting end of the drill tip. The oil acts not only as a lubricant and coolant, but also serves to force the steel chip, which is in the form of a thin narrow ribbon, through the V-shaped groove in the drill tip, out of the bore, and into a pan at the bottom of the drilling machine, directly over a large reservoir. A strainer or filter holds the chips in the pan, while the clear oil is caught in the reservoir, to be pumped through the drill again. This oil is used over and over, as in the case of the power-milling and spline-milling operations previously described.

Incidentally, Eli Whitney the Second, son of the inventor, of interchangeable-parts manufacture, of the milling machine, etc., etc., was one of the first to make gun barrels of steel, as well as to introduce many improvements in the methods of drilling, reaming, and rifling barrels.

NOTE: This article must not be reprinted without permission of the Author. Part V will describe reaming of barrel bores and turning of outside barrel contours.

Fig. 3





Fig. 1

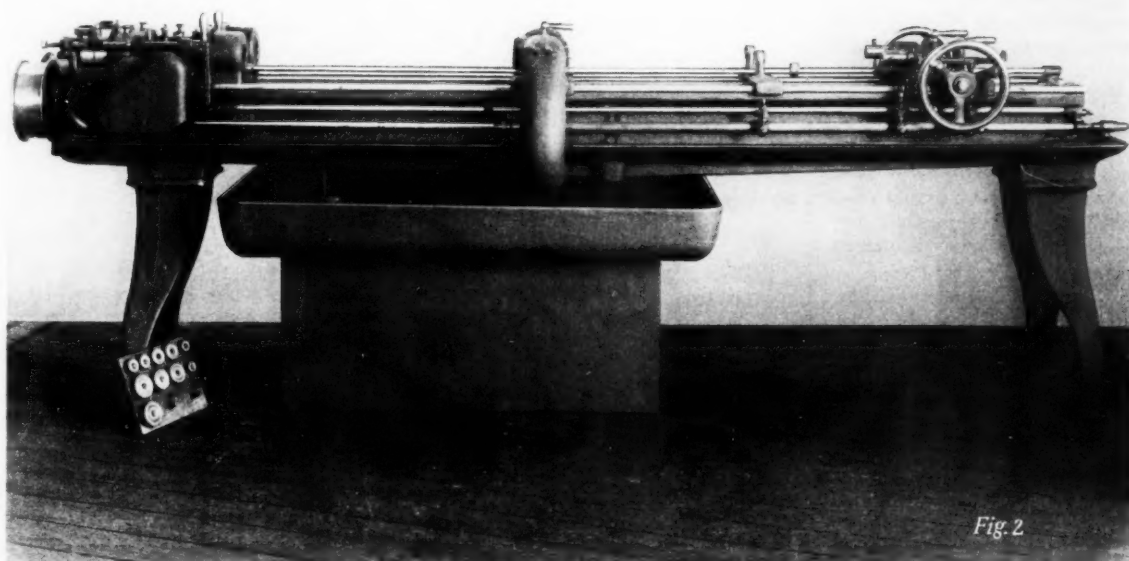


Fig. 2

IN THE SUMMER CAMP

By W. DOW SMITH *

ALL SUMMER, camp instructors in rifle shooting are faced with the necessity of competing with other sports, such as riding, sailing, canoeing, etc.; and the following ideas may prove helpful to the harassed rifle instructor.

When a visitor first comes into a camp, or a new camper arrives, he first goes to headquarters for information. If on the porch of the headquarters building he sees a special bulletin for the rifle-shooting program, and can see some of the medals to be won, it serves as a boost to the game. A complete assortment of all medals and pins awarded by the Junior Division of The National Rifle Association may be had for the asking, and if well cared for may be returned at the end of camp or retained on a permanent consignment basis as long as the camp fulfills the regulations prescribed by the Association. An attractive glass case can be made, and the pins, medals, qualifications, etc. be displayed for all to see. And don't think that this display will not be of interest to all—shooters as well as non-shooters.

With the display should be a large chart that can be easily read from six or more feet distance, bearing the competitors' names, and all their total scores for the various stages fired in the course. This adds interest, and the inevitable questions arise as to which of the shooters fire the best scores. It furnishes a stimulus to the poor shooters as well as to the good ones, and arouses rivalry almost equal to that of a shoulder-to-shoulder match. Certainly the high target should be placed on display, and replaced immediately if a higher one is fired. Such a chart is watched almost hourly by the boys.

Next comes Parents' Week-end, and the horse show, swimming races, canoe tilting, and possibly a pageant staged by the boys. These are activities in which the campers alone take part, the fathers being merely spectators; and instructors will do well to put on a Father-and-Son match. This should by all means be fired prone, and since the dads all like to shoot it should be a twenty-shot event for each competitor. A small prize may be awarded to the camper who, with his dad, outshoots the other teams. The camper coaches his father, and it certainly is something to hear a lad telling his dad to ease up, try a few dry shots to get the trigger pull, squeeze the trigger, etc. The fathers like it, and a companionship is inspired that lasts longer than the week-end. It may even mean that Junior is allowed to have a rifle, and join a club—possibly one formed by his own dad after camp.

All the diplomas should be carefully filled in, especially the Sharpshooter diploma, for many times dads have to have them framed after camp—or the craft-shop man is called upon to help make a rustic frame. The scores of each stage should be placed on the front of the diploma, so

that the boy can know his score in years to come when he runs across the diploma at home. On the back of at least one of the diplomas the instructor should put his name and home address, as a boy may want to communicate with him; or an instructor in a different camp later on may wish to verify the scores.

The bugbear of the instructor is keeping records. Records of the shells issued by the camp to the boy; the boy's scores; affidavits; whether the target has been filled in and placed in the envelope prior to mailing, etc., etc. By all means don't overlook the matter of one medal to be awarded to a boy at the final banquet. He'll be broken-hearted if you do, for giving it to him the next day isn't the same. The medals should all be connected if he is in the Possible 500 stage, and they should be placed in an envelope for the awarding. Two pairs of thin-nosed pliers will be useful in connecting the bars. The easiest way to do this latter is to twist the links sideways instead of opening them out; and they will be more easily twisted back to a perfect circle. This bit of work should be done over a white paper on a table—for those links are darn hard to find on the floor.

If a 4 x 6 filing card is used, such as the one illustrated, many of the records are more easily kept. Some instructors keep the records in a notebook, but the card system is easier, and just as complete. If the boys go by numbers as well as by their names, but you call for them by number, they are becoming familiar with the number idea, which will be useful to them in later matches should they continue with their rifle shooting. If the number is recorded on the card, and also placed on gummed paper on the outside of the shell box, when another box is issued to the boy all you have to do is to exchange the empty shell "drawer" for a full one, until the outside begins to wear. The card illustrated takes the camper as far as the eighth bar, and very few boys go beyond that in camp. For those who do, the information can be recorded on the back of the card.

A small overnight bag can be fitted up as a junk box, and utilized for carrying fired and unfired targets, the card box, shells, shot-hole gauge, etc. In this way it is much easier to carry all the equipment to and from the range.

AL-GON-QUIAN .CAMPS											#9--1938			
Twining, Dick---12--1310 Beechwood Dr., Ann Arbor, Mich.														
Shells---	X X X X X													
	1	2	3	4	5	6	7	8	9	10	Avg.	Tgt.	Md.	Am.
Pro - Marksman	36	38	31	27	28	27	34	41	32	44	33.8	X	X	X
Marksman	30	35	28	43	30	44	39	41	43	32	36.5	X	X	X
Marksman 1st.	31	37	40	40	32	37	38	34	42	37	36.8	X	X	X
Sharpshooter	37	40	39	35	40	39	36	37	42	42	38.7	X	X	X
Possible 500	42	42	41	40	41	40	40	44	42	42	41.4	X	X	X
Bar 2														
Bar 3														
Bar 4														
Bar 5														
Bar 6														
Bar 7														
Bar 8														
Dow Smith, Inst'r.														

Dow Smith, Inst'r.

SOME ASPECTS of WINDAGE

By RUSSELL WILES

A COUPLE OF YEARS ago I had a thoroughly interesting visit with Wallace Cox, of the Du Pont Company, in his laboratory. Among other things he asked me the relative effect on a bullet of a given wind near the butt and near the firing line, and when I answered wrong he made some pertinent and well-merited remarks about the wisdom of remembering my elementary physics.

So in a humble and chastened spirit, I got out a scratch pad and did a little figuring. The results were so surprising and instructive that I asked Cox to prepare an article on this subject. Since he has not done so, and since the matter is really interesting, I am undertaking it; but I wish it clearly understood that Cox is responsible for my enlightenment.

The matter, however, is one of simple physics, and Bill Woodring tells me Harry Pope called it to his attention several years ago. Yet the ordinary rifleman's ideas on the subject are just as erroneous as mine were.

Briefly, the wind at the firing line is immensely more important than that near the butt, and the closer the bullet gets to the butt the less important the wind is. The approximate proof of this is very simple, although the exact proof requires considerable calculation. Let us first see why this is.

In the days of the 150 grain .30 caliber bullet we had and used a very simple wind gauge rule, which was to multiply the number of hundreds of yards of the range by the velocity of the wind in miles per hour and divide by 10 to get the correction in minutes or quarter points. Taking a 10-mile cross wind, this gave a correction of as many minutes as there are hundreds of yards in the range.

It is self-evident that this simple rule, which is extremely accurate, assumes that the wind exerts a deflecting force which is the same for each like distance passed over by the bullet. Since the wind deflection actually depends on the "delay time", which occurs in any given part of the range, this assumption is not quite accurate, but the difference is so small as to be entirely unimportant. It is possible to calculate the "delay time" in the first 100 yards of a 1,000 yard range, and in each succeeding 100 yards. These increments of "delay time" are so nearly equal that it is foolish to discuss their inequality.

In the case of a .30 caliber bullet the "delay time" in the last 100 yards is a very little greater than in the first 100 yards, while in the case of the .22 long rifle bullet the "delay time" for each increment of distance is a little less toward the end of the range. In either case the difference is negligible in the sense that if the wind deflection is calculated on the accurate "delay time" basis for each separate increment of range, the figures are so close to those based on the theory of uniform deflection for each increment as to make no practical difference.

While the expression "delay time" is now pretty generally understood, perhaps it should be defined for some of our readers. The "delay time" for any increment of range is the difference between the actual time of flight over that increment and the time that would have been taken if the bullet had not been slowed by air resistance while traveling the same distance.

While the actual time of flight is greater over the last 100 yards of a 1,000 yard range, the remaining velocity at

900 yards is much less, so that the "delay time" is about the same as that in the first 100 yards.

Hence, accurate and laborious calculations would not appreciably change the approximate figures given by the old reliable wind gauge rule, and these will now be derived.

Let us consider a 1,000 yard range and a cross wind which drifts the bullet one inch of the 100 yards. With the old .30 caliber bullet this is a 10-mile wind, and with the present bullet it is nearer a 15-mile wind. Suppose, too, that we had a complete wind shelter, say a tunnel, protecting all the range except the first 100 yards which, alone, is exposed to the wind. Now while the bullet is actually deflected one inch at 100 yards, in being so deflected it has acquired a cross component of velocity of two inches per 100 yards of range passed over. This is in conformity to the usual rules of physics.

Since the bullet starts with a zero cross component, it must reach 100 yards with a two inch cross component, so that its average lateral velocity will produce the total of one inch, which is the actual deflection. The amount of this transverse velocity is easily verified by calculating the deflection between 99 and 101 yards according to the wind gauge rule. This shows that as it passes the 100 yard line the bullet is traveling sideways at the rate of two-hundredths of an inch for each yard passed over.

In the case supposed, the bullet, having traveled the first 100 yards and acquired this cross component of two inches per 100 yards of range, now enters the windless space and flies an additional 900 without any additional side force. Under Newton's laws, it keeps the sideways movement it had at 100 yards, and, therefore, travels sideways an additional two inches for each 100 yards of travel, making in all 18 inches of lateral movement in the windless area. Adding the one inch of deflection at 100 yards, we get a total deflection of 19 inches at 1,000 yards, all of which is caused entirely by the wind which blew on the bullet in the first 100 yards.

In like manner, we can figure the deflection at 1,000 yards caused by the wind between 100 and 200 yards. This by simple arithmetic is 17 inches. The wind between 200 and 300 causes a deflection of 15 inches; that between 300 and 400 causes a deflection of 13 inches; and so on, until the wind in the last 100 yards causes a deflection of only one inch. The total deflection at 1,000 yards, if the whole range is open to the wind, is, in the case supposed, 100 inches.

Thus the wind in the first tenth of the range causes nineteen times the deflection that is caused by the wind in the last tenth of the range.

These increments of deflection can be added together in accordance with Newton's laws. If a wind of the strength above supposed strikes a bullet only over the first 200 yards of the 1,000 range, the deflection is 19 inches plus 17 inches, or 36 inches, which is 36 per cent of the total deflection we would get on a wholly open range.

Similarly, the wind in the first 30 per cent of the range causes 51 per cent of the total deflection, and the wind in the first half of the range causes 75 per cent of the total deflection. On the other hand, the wind in the last tenth of the range causes only 1 per cent of the total deflection, and that on the last fifth of the range, 4 per cent.

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This demonstrates the vital importance of observing the firing line wind and the relative unimportance of wind far down the range.

At this point someone will proclaim that the foregoing is all nonsense, because the very wind gauge rule which has been relied on shows that, in a 10-mile cross wind, the old 150 grain bullet is deflected nine minutes or 81 inches at 900 yards, and ten minutes or 100 inches at 1,000 yards, so that the deflection between 900 and 1,000 is 19 inches, whereas it is only one inch at 100 yards. Hence it will be argued that the above theory is all wrong and anyone with common sense could see that the wind at the butt is what counts.

The difficulty with the foregoing deduction is that while the bullet does travel sideways 19 inches in traveling the last 100 yards, 18 inches of that travel is the result of lateral velocity the bullet acquired in reaching 900 yards, and only one inch is due to the wind blowing on the bullet in the last 100 yards. If the last 100 yards of the range were shielded from all wind, the bullet would still travel sideways 18 inches in that 100 yards; so we see that the wind actually blowing in the last 100 yards adds only one inch to the total.

Again, therefore, I repeat that the wind near the butt is of entirely negligible importance, and the wind near the firing line is vital.

It may be noted that the .30 caliber rifleman, whether he knew it or not, has always controlled his fire essentially by this wind close to the firing line, because that is what the mirage in his telescope indicates. In long range shooting, we are all taught to start with the telescope over-extended and to push it in to the first point of clear focus. This gives us a sharp focus at 200 yards. Then we are taught to draw the scope out just a little, so as to make the target a little indistinct, and thus focus on the mirage nearer the firing line. Everyone must appreciate that a very slight extension of scope will change the focus to 100 yards or less. So the long range shot has always corrected by the wind actually prevailing at only about one-tenth of the range from the firing line.

However, the small bore rifleman doesn't do this, because his scope, if drawn out just a trifle, still is focused far down on his relatively short range and, when he relies on the mirage as seen through his telescopic sight, his glass is focused perfectly sharply on the target. Besides, in short range shooting, the scope can't be pulled out at all, because one needs a very sharp image in order to spot bullet holes. Therefore, his scope never shows the small bore shot the wind near the firing line, yet he is just as badly in need of information about this wind as is the .30 caliber rifleman.

So for the small bore man, the feel of the wind on his face, the drift of smoke from the barrels of his neighbors, and even the drift of smoke from the cigarette lying beside him, are all vastly more useful than all the mirage in the telescope.

While dealing with wind, it is noteworthy that no practical wind gauge rule for the caliber .22 long rifle bullet has ever been published, and in consequence many small bore riflemen haven't even the foggiest idea of how to set their sights for their first shot. While an accurate rule can be stated in several different arithmetical forms, the simplest to remember and to work in one's head is as follows:

At 100 yards the correction in minutes is one-third of the miles per hour of cross component of wind.

At 200 yards this correction in minutes is doubled.

At 50 yards the correction in minutes is halved.

At 55 meters the theoretical correction should be 10 per

cent higher than at 50 yards, but since it is doubtful whether anyone can judge wind within 10 per cent the best practice is to use the 50 yard wind, erring perhaps a little on the high side.

The expression "cross component" ought to be understood by everyone, but repeating its value will do no harm. At nine and three o'clock the wind is directly across the range, and the cross component is 100 per cent of the velocity. At six and twelve o'clock the cross component is obviously zero. At eleven, one, five and seven o'clock the cross component is half the velocity. At two, four, eight and ten o'clock the cross component is 86 per cent of the velocity, but here again we approach the error of human estimation of wind velocity, so the best rule for these winds is to set the sight just a little on the low side of that figured for nine or three o'clock wind.

It would be highly desirable if every rifleman could know the exact zero of his rifle at all ranges. There probably is not a small bore rifleman in America who actually has that information. It is not at all easy to obtain, particularly at long range. The .22 caliber bullet has some real drift due to its rotation on its axis, but the practical zero, which, because of this drift, would vary at the different ranges, is modified by any habitual cant which the rifleman employs. If a rifle with iron sights is slightly canted, or if the cross-hairs of the telescope are not quite square with the mounts, then in taking elevation the rifleman will also unconsciously take some windage. In other words, the sights will act as if they had a slanting drift-slide like that of the Springfield. The windage thus unconsciously taken can vary both in amount and in direction, and may either add to or subtract from the true drift.

Of course, it is possible to get a true zero at any range over which one can shoot indoors. Most men are limited to 25 yards for this kind of shooting. A reasonable percentage occasionally get a chance to shoot indoors at 100 yards, and only a few men ever have a chance to shoot 200 yards indoors.

So far as concerns outdoor shooting, a wind of a mile or two per hour is practically undetectable and, therefore, a zero derived outdoors can never be quite accurate. We would all be better off if we could be absolutely positive of the true zero at each range. We certainly should never fool ourselves by believing that the true zero at 200 yards is the same as that at 100, for it very seldom is.

Finally, it would be very well for us all to remember that irregular canting of the rifle, especially at long range, often produces lateral dispersion which is utterly undistinguishable from wind deflection. At 200 yards, irregularity in cant can more than offset excellent wind doping.

The magnitude of deflection caused by cant was ably and accurately set out in the American Rifleman a number of years ago in an article by Reynolds.

At 200 yards the magnitude is startlingly large, and one ought to go pretty slow in adjusting for alleged wind changes, unless he is positive that the last shot was fired with the rifle in normal position.

Important Notice

Since publication in our May issue (page 23) of Mr. Kiimalehto's short article describing a trigger-control device for handguns, we have been advised by Mr. A. E. Berdon of Yellow Springs, Ohio, that this device infringes his patent (No. 2046996). Mr. Kiimalehto doubtless was, like ourselves, quite unaware of any infringement.

This Handgun Game

By WALTER F. ROPER

Getting Started with a Handgun

PROVIDING YOU HAVE REALLY WORKED on the job of getting a correct trigger squeeze as suggested last month, you are ready (except for two things) to do some actual shooting; so in as few words as possible let's get down to the fundamentals of holding and sighting, so that you can begin getting some real fun out of your new sport.

Briefly, a handgun should be held with the hand as high up on the stocks as possible without interfering with the hammer. The thumb should rest on the top of the frame, alongside the hammer but not touching it; the grip should be only tight enough to make the gun feel perfectly secure in the hand, and the hand should go around the back of the stock far enough so that the heel of the hand is past the center-line of the gun. There is a good reason for each of these things, and we will discuss them a little later; but right now we want to start shooting. Undoubtedly you will want to work out a way of holding the gun that feels just right to you, and that is proper; but remember these bed-rock rules, and be sure your hold meets the requirements.

In sighting, the important thing is to keep the sights in as perfect alignment as possible WITH EACH OTHER. The easiest way to do this is to have the front sight appear to be right in the center of the notch in the rear sight, and the tops of the front and rear sights in line with each other. Never mind about the bullseye for the present. In fact, the alignment of the sights with each other is so much more important that we are not even going to use a "bull" in our first shooting; so put your effort into keeping those sights in as perfect alignment as possible, and in a correct trigger squeeze.

Use either a plain piece of paper or a standard 50-yard target for your first shooting, and start at a range of not over ten yards. If you use a target, put it up with the blank side toward you so that the bull isn't visible. Now try aiming as suggested, focusing your eyes on the sights and pointing at what you guess to be the center of the paper. Stop breathing while aiming, but don't aim so long that you are in the least uncomfortable, either from want of air or because your arm tires. Better try several "shots" with an empty gun, combining careful sighting and trigger squeeze, just to make sure that you are pressing straight to the rear. Grip the gun lightly and let the muscles of your arm be limp, having all the support come from your shoulder muscles.

Now load a single cartridge, and try a shot. Take a lot of care, and make sure that the sights are in line and that you press the trigger correctly. Never mind where the shot strikes, and don't think you are being handicapped by not having a black spot to shoot at. Take plenty of time for each shot, and if it doesn't get away before you begin to be unsteady, take the gun down and rest a moment. Shoot ten shots, mark the target "No. 1," and after a rest try it again. That 20 shots will be enough for the first try—and right here is a good time to assure you that you will make progress faster if you go slow. If you have fired carefully, you won't have many wild shots, and if your group is something like 5" in diameter, that is plenty good enough for the first try. Don't bother to count up the score on the other side of the target (the chances are that your gun isn't sighted to put the shots into the center, anyway),

for what we want now are small groups without any wild shots. Keep up your trigger-squeeze practice at home between trips to the range. Do it by aiming at a window in order to see the sights clearly.

When you can make 4" groups regularly at 10 yards, try shooting at 15 yards, then at 25. That will give you plenty to work on till next month, and by that time I'll bet you can keep your shots in a circle no larger than the bull of the 25-yard rapid-fire target at that distance! Right now let's dig into that holding and sighting matter a little more, because by understanding it one can keep the requirements in mind more easily.

About Holding

If the discharge didn't make a pistol or revolver move before the bullet left the muzzle, it wouldn't make any difference how you held the gun, or whether you held it the same each time (provided you just didn't hold it so tightly that your hand trembled). The trouble is that the gun does move, both upward and with a twisting motion, and there is no way to completely prevent this. That fact, by the way, is why "dry snapping," though excellent practice for developing trigger control, steady holding, and accurate sight alignment, will not of itself assure good shooting, because it gives no practice whatsoever in keeping uniform for each shot the motion of the gun that occurs before the bullet leaves the barrel. This is also the reason why "calling" a shot from the way the sights looked at the instant the hammer fell, isn't the dependable proposition that it has been considered.

A high position of the hand on the stock puts the wrist joint—around which the gun rotates when it is fired—the shortest possible distance below the center line of the gun along which the force of recoil acts. This reduces the leverage through which that force acts upon the wrist joint, and so cuts to the minimum the upward and twisting motion of the gun. To prevent the recoil from making the gun turn in the hand and so cause sidewise motion of the muzzle, the resistance to it should be directly in line with it, which means that the heel of the hand should reach around the stock far enough to go past the center-line of the gun.

The thumb can be either alongside the hammer on top of the frame, or it can point downward toward the end of the trigger finger. The high position is preferable mostly, because when you take up rapid fire the thumb will have a shorter distance to move to reach the hammer-spur. Many fine shots use the low position of the thumb for slow fire, and assure a straight-back pressure on the trigger by disregarding the trigger entirely, and thinking only of making the tip of the trigger finger touch the end of the thumb. In any event, don't press the thumb against the side of the gun, for if you do you must press an equal amount on the opposite side with the trigger finger—and that will give you one more thing to do the same for each shot. And the results won't be a bit better than with a balanced hold and a straight-back pressure on the trigger.

About Sighting

Accurate alignment of the sights with each other is particularly important in handgun shooting, because the sights are so close together. If you are shooting a 6"-barrel

BRIDGEPORT, CONN., JUNE, 1939

Rifle Register

"PALMA KLEANBORE" SHOOTERS TAKE SIX EVENTS AT GLENDALE MATCH

FLOYD DAY WINS TWO; GLENDALE CLUB TAKES 4-MAN TEAM MATCH

GLENDALE, Cal.—"Palma Kleanbore" was definitely the top ammunition at the 15th Annual California Rifle & Pistol Association Smallbore Matches here.

Floyd Day of Pasadena took two events with Palma Kleanbore, scoring 398 x 400 in the Any Sights Dewar and 197 x 200 in the Any Sights Wimbledon. O. C. Marekmann of Glendale won the 50-Meter Iron Sights with 392 x 400. E. J. De Boer won the 50-Yard Iron Sights with a possible 400. The Glendale Rifle & Revolver Club won the inter-club Team Match with 796—all team members shooting Palma Kleanbore. T. E. Dunlap and W. M. Ridings of Glendale won the Two-Man team event with 398 x 400, both shooting Palma Kleanbore.

J. O. Miller second in Aggregate

J. O. Miller of Los Angeles, shooting a Model 37 and Palma Kleanbore, placed second in the State Championship with a score of 2370.

In the California-London (England) 20-Man Team Match (Dewar Course—Iron Sights), the California team turned in the fine score of 7949. Thirteen men on the team used Palma Kleanbore ammunition; five shot Model 37 rifles. The score of the London team has not yet been reported.



O. C. Marekmann of Glendale won the 50-Meter Iron Sights event with Palma Kleanbore, scoring a neat 392 x 400.



E. J. De Boer of Glendale scored the only possible in the 50-Yard Iron Sights. He used Palma Kleanbore Ammunition.



Floyd E. Day of Pasadena won both the Hamilton Match and the Wimbledon, shooting Palma Kleanbore.



Glendale R. & R. Club—Red Team. Rear, L. to R., Tom Dunlap, Russell Eiffler. Front, Wally Robbins, Bill Ridings.



Two-Man team match winners at Glendale—Tom Dunlap and Bill Ridings. Both used Palma Kleanbore Ammunition.

QUINCY HIGH SCHOOL TEAMS CONTINUE HIGH SCORING SPREE

QUINCY, Ill.—Outclassing their opposition with a score of 1872, the Quincy High School team won the annual tournament held by the Quincy Kiwanis Club by a 50-point margin. Richard Elmore was high individual with 378 x 400.

At the annual Mid-west Matches held by the Morgan Park Military Academy, the Quincy boys team took second place, while the Girls No. 1 and No. 2 teams finished first and second in the Girls events.

At the recent "Indoor Camp Perry" Matches held by Kemper Military Academy, Quincy won both Boys' and Girls' team championships. All Quincy shooters use Palma Kleanbore ammunition—and a large proportion shoot Model 37 rifles.



Quincy, Ill., High School Rifle Team. Standing, left to right, Enid Heidbrink, Harris Bird, Kyle Snowhill, Louise Reynolds. Kneeling, Richard Elmore, Joe Shaw.

POSSIBLES AND IMPOSSIBLES

by FRANK J. KAHRS



In the rush of things we neglected to state that early in the year the Oregon State Rifle & Pistol Association held a gallery championship in Portland. There was a fine turnout and a fine shooting. We note that Ivan Waddell and Mrs. Waddell were prominent among the winners. We would also note that then we note also our old friend Frank Cosby of the Oregon Gun Club who won two first places, the second "A" offhand and the Grand Aggregate. Of course we were particularly interested in the fact that Frank shot a Model 37 and Palma Match ammunition. There was no telescope on the 37 Remington, just regular sight issued. Our compliments to our friends the Waddells and to Frank Cosby. Incidentally, Frank's scores were a possible prone; 4 down and 177 offhand for 573 x 600, that certainly is good going.

The Liberty Rifle & Pistol Club of San Antonio, Texas, recently held a shoot which was fairly well attended. Match 1 at 50 yards went to Mrs. P. Bartlett of San Antonio with a Thurman Randle of Dallas, Texas, second and Jesse Raven of Austin, third, all shooting Palma Kleanbore. Mrs. Bartlett was also the winner of Match 3 at 50 meters with a score of 392. The Grand Aggregate went to Thurman Randle with 1182 x 400. Mrs. Bartlett taking second with both shooting Palma Kleanbore.

Just received a 50-foot target with bull's-eyes and in the center of the bull's-eye there was a hole, and the hole had gone 5 Kleanbore pellets, which makes 50 shots at 500 yards. We found the name of Mrs. R. V. N. J., on the card. We strongly suspect that her partner in shooting is also her husband, sent in the name Henry.

One of my correspondents tells me about Guy D. Jones of the Gresham Rifle Club, Gresham, Oregon, who is a friend of Palma Match. It seems that in 1938 he ran a 400 over the 100-foot Course in the State Eliminating Matches, which are preliminary to the National, his score being 400 x 400. 39 X's, the one lonely X dropped at 50 yards. Then in the Tournament of Champions, Jones scored 800 x 400 with 69 X's which is a new record. "American Rifleman" (September, page 35) 2-100 Yard 10-X. We

NAVAL ACADEMY TEAM WINS INTERCOLLEGIATE TITLE

Scores 1891 for 20-point margin; Carnegie Tech places second

Both teams shoot Palma Match or Palma Kleanbore

ANNAPOLIS, Md.—Shooting against forty-five college and university rifle teams, the U. S. Naval Academy's riflemen won a decisive victory in the recent National Shoulder to Shoulder Intercollegiate Team Championship Matches.

The Naval Academy turned in the remarkable score of 1891, to win by twenty points. The team made five possibles prone, 489 sitting, 473 kneeling, and 424 offhand. Four members of the team used Palma Kleanbore ammunition; the fifth Palma Match. Carnegie Tech, with all team members shooting Palma Kleanbore ammunition, placed second with a score of 1871.

McCoy of Navy high with Model 37 and Palma Match

J. W. McCoy, Captain of the Navy team, won the Individual Intercollegiate Championship with 385 x 400, shooting a Model 37 rifle and Palma Match. He scored a possible prone, 99 sitting, 96 kneeling, and 90 offhand, winning by 3 points. W. A. Stiles of Navy finished fourth with 381, four points down.

In eight shoulder to shoulder matches the Naval Academy team members have averaged 1885.5. Individual averages are: W. A. Stiles—380.3; J. W. McConnaugh—377.6; J. C. Roper—377.5; J. W. McCoy—375.1; C. Ross, Jr.—375.0.

New Intercollegiate Record for 3 positions

Navy's score on three positions (prone, kneeling, standing) breaks the old National Intercollegiate three-position record of 1397 by 5 points. The old record was made by Navy in 1937 with Palma Kleanbore.

The Navy team faltered slightly at the sitting stage, losing 4 points to Carnegie Tech, but their wide margin at the other three positions was ample to give them final victory.

George Washington University, which won last year's Intercollegiate with Palma Kleanbore and Palma Match ammunition, finished in 11th position with 1829.

OAKLAND CLUB WINS GALLERY MATCHES WITH RECORD SCORE

Five-man team scores 950 x 1000 with KLEANBORE—87 teams compete

SAN FRANCISCO, Cal.—Setting a new record of 950 x 1000, the Oakland Rifle Club Gallery team won the California State Gallery championship by a five-point margin. The old State record of 949 x 1000 was held by the Golden Gate Rifle & Pistol Club of San Francisco, which finished second with 945.

Following their victory in the Gallery Championship, the Oakland Club won two four-position inter-club matches in quick succession, with the exceptional scores of 959 x 1000 and 954 x 1000. The five team members have an individual average of 190 for three consecutive shoots. All used Kleanbore ammunition.



Gallery team of the Oakland, Cal., Rifle Club. Top row, left to right, are Ed Amaro, Henry Keenan and F. Stephenson. Bottom row, Frank Amaro and Jimmy Williams.

...somewhat belated, we hasten to ...ward Guy Jones a 400 brassard. We ...Mrs. R. ...also told that he has made 37 ...possibles offhand on the 50-foot range, ...of them on record. We haven't fig- ...ed any brassard for this kind of ...shooting yet, but there ought to be ...something.

...at Bridgton, Maine, there is a chap ...the name of Jerry Palmer who has ...some good shooting offhand at ...feet during the past season. In fact ...have one target before us fired by ...on April 11th scoring 96, which ...indicates very excellent holding con- ...y X dropped because the two shots on each tar- ...cut into each other. Regular Klean- ...ammunition was used by Mr. ...September ...10-X. W.

MORE SHOOTERS EARN 10-X BRASSARDS

Here are 4 10-X possibles turned in at the recent University of Chicago Indoor Matches. All shot at 100 yards.

Bill Sayr of Cincinnati made this well-centered group with Palma Kleanbore.

M. H. Slater of Pontiac, Mich., gets a brassard for this one. "Palma Kleanbore."

O. E. Crockett of Logansport, Ind., used Palma Match to make this target.

W. Vasker of Toledo, O., gets a brassard for this nice group. "Palma Kleanbore" again.

THE TARGET OF THE MONTH



Here's a beautifully centered 10-X possible at 100 yards, made in a Glendale, Cal., Rifle Club match by Ollie Wagg of Beverly Hills. The ammunition was Palma Kleanbore.

Each month Remington will produce what is in their opinion "The Target of the Month." Only conditions: 1. It must be fired under N. R. A. rules. 2. Be witnessed by two people. 3. Be fired within one month previous to the time it was mailed to us. 4. Be fired with Remington ammunition or rifle. Send in "hot" targets to Frank Kahrs, Remington Arms Co., Inc., Bridgeport, Conn.

revolver, any error of alignment of the sights will be 257 times as great at 50 yards, because 50 yards is 1800 inches, and that is 257 times the sight radius of the 6"-barrel revolver. The Woodsman has a sight radius of 9", which means that errors of alignment are 200 times greater at 50 yards. If one will keep his sights in alignment with each other, he can still hit the 8" bull at 50 yards if his point of aim is as much as 4" away from the perfect point for a "pin-wheel" ten, and that means an error of over one-sixteenth of an inch at the muzzle of the gun. But let those sights get out of alignment by only .015", and the shot will just nip the 8" circle!

The first requirement to get the perfect alignment wanted is to see the sights clearly. Very few shooters can see an error of $\frac{1}{100}$ of an inch if the black sights are against a black background such as the bullseye, or if they are surrounded by a halo of fuzz that results from focusing the eyes on the bull and trying to see the sights also. For slow-fire shooting at 50 yards—or even 25 yards on a small

bullseye—the orthoptic disk is excellent, as it lengthens the "depth of focus" and makes both sights and target show up clearly. The next best thing is to focus the eyes on the sights, and let the bull blur. The gun should, however, be sighted so that the sights can be aligned at a spot well below the black bullseye, against the white paper. It is, however, the most natural thing in the world for shooters to focus their eyes on the bullseye, because that is what we are trying to hit; and there is where much of our poor shooting starts. It may be possible for some to see the sights clearly at 25 yards when the aiming point is the center of the black bull, but most shooters will find that even at this range better shooting will result if the sights are seen against the white paper.

Actually, even at 50 yards the bullseye isn't at all necessary, for one can guess at the aiming point with plenty of accuracy to score just as well if the target is blank-side toward him—provided the sights are kept in correct alignment with each other!

THE GOLDEN BULLETS—1939

(Continued from page 16)

of fame. Before this no team had been strong enough to place more than two men on the list in any one year, though the Annapolis crew has consistently accounted for two places each time the selection has been made.

J. W. MCCOY, *U. S. Naval Academy*—A senior, rates top position by virtue of a 385 score which led the field for the National Intercollegiate Individual Championship. Rated an excellent leader, McCoy is Captain of the Navy marksmen, fired a 380 total as anchor man of the team that captured the Intercollegiate title. He completed the season with an average of 375.1 for seven matches.

G. E. MEEKS, *University of Maryland*—First of Maryland's Terps to win an All-American rating, Meeks averaged better than 378 over the season. Much improved since last year, when he placed on the second team, he finished his junior year with a golden bullet, has another year of varsity competition ahead of him.

J. W. MCCONNAUGHAY, *U. S. Naval Academy*—With the quality of leadership essential to All-American rating, McConnaughay places with a season average of 378 for the eight matches in which he fired. A senior at Annapolis, he scored 378 in the National team event and 379 in the individual.

CLAIR K. HOFFMAN, *University of Pittsburgh*—A senior, his 1939 average was 375. Hoffman holds varsity rifle team letters for 1937, '38 and '39, turned in a 385 as high score for the year. Early National Guard training accounts for his ability with the rifled tube.

H. P. GREENE, *Carnegie Institute of Technology*—Captain-elect of the 1939-40 team, improves when the pressure is on, as evidenced by a brilliant new team record of 390, fired last year at Annapolis, after having driven 250 miles the preceding day. In another match he turned in a 194 x 200, knowing he had to make up for a miss fired by a team-mate. His season average is 378.

C. J. JACKSON, *University of Minnesota*—21-year-old junior, has consistently led his team in all of their matches. As anchor man of the team firing for the Twin City League Championship, Jackson turned in a 389, with a 95 standing, to clinch the title for Minnesota. Backed by the con-

fidence of his team-mates, he is expected to carry the load as captain of the rifle squad in his senior year.

W. A. STILES, JR., *U. S. Naval Academy*—Holds high average on the Navy team. A most consistent shooter, his season's scores have ranged between 378 and 383, averaged 380.2. Stiles is a senior, standing in the top quarter of his class.

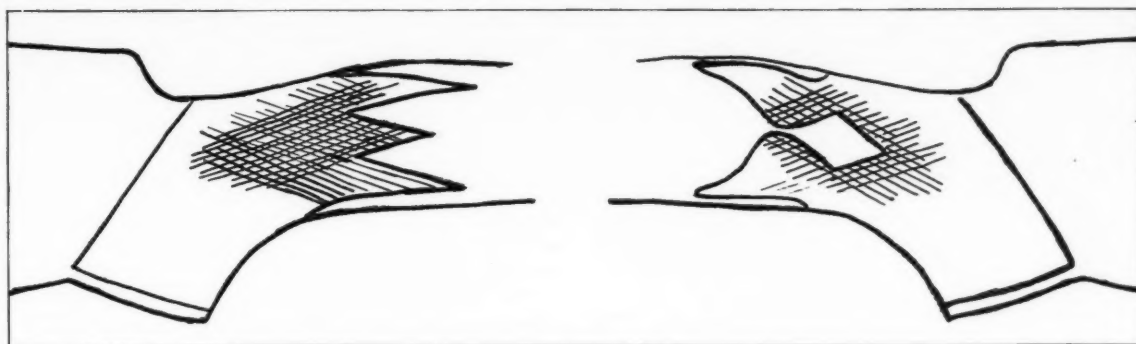
S. C. BURKHALTER, *University of Alabama*—Bama's first representative on the All-American of rifle shooting, Burkhalter is a junior in the School of Engineering, placed on the second team last year. His season's average, which leads his team, is above 382, with a 390 high for the season. Of an unassuming character, his coolness and dependability "under fire" won for him the plaudits of the coaches of three neighboring schools on whose ranges he has fired.

T. M. LEWIS, *Georgetown University*—Lewis, who graduates this year, is no newcomer to the honor list of small-bore shooters. A familiar figure at the big Eastern tournaments, he probably is the first to make his mark in open competition and then in collegiate. He has shot since 1933, still holds the long range small-bore records for two Long Island and New Jersey events. His golden bullet will be the first to fall to a Georgetown student.

J. C. ROPER, *U. S. Naval Academy*—A senior at Annapolis, Roper accounted for high score honors in the National Shoulder-to-Shoulder team event, a 383. He started his shooting career at the Central High School in Chattanooga, Tennessee, held an average last season of 377.5.

The second team:

GUY N. GOSEWISCH, *University of Minnesota*.
RALPH H. SHILLING, *Ohio State University*.
RUSSELL G. McMILLEN, *Carnegie Tech*.
CLAYTON ROSS, JR., *U. S. Naval Academy*.
J. D. McCUBBIN, *U. S. Coast Guard Academy*.
EDWARD G. UHL, *Lehigh University*.
FRANK M. SQUIRE, JR., *Hofstra College*.
WILLIAM W. SANDERSON, *Georgia Tech*.
EVAN T. SAGE, *University of Pittsburgh*.
LYNN TAYLOR, *University of California*.



Two checking designs for pistol grips

HOME GUNSMITHING

By "PROFESSIONAL"

STOCK-CHECKING DESIGNS

WHEN YOU COME TO CHECKING the forearm, if you are a beginner choose a simple design, such as one consisting simply of two triangles, one on each side, with their bases parallel to the top edge of the forearm and their points about half an inch apart on the bottom of the forearm. Where you get into trouble is with a forearm checking design in which the lines of checking run clear around the forearm. This is most difficult to execute and keep the lines straight. After you have had some experience in checking you can attempt such a design.

Another good forearm checking design is the three-panel arrangement, consisting of a panel with rounded ends on each side, and a third panel between them on the bottom of the forearm.

To look well, the diamonds of your checking should be three times as long as they are wide, and they may be even longer than this.

In making any design (such as the triangles mentioned) that runs out to points, the sides should join each other at the proper angle to form your diamonds, so draw your design on paper, full size, and check up on your angles to make sure that they are right.

In a design like the three-panel one mentioned, the sides do not meet to form diamonds, so in this case you draw your outline of the panel, and then, at any point inside the panel, draw two lines crossing each other at the proper angle to form the diamonds, and work from these two master lines.

In using a point design, drive pins into the wood at each point, and, stretching a fine steel wire across the wood from pin to pin, tap it with a light hammer all along so as to mark the outline of the triangles. This outline is then easily followed with the deepening tool, and after it has been straightened up, take the spacing tool and mark out your next groove, working slowly and taking care that the lines run straight. When they fail to do this, take the deepening tool or the bent file, and straighten the crooked line before doing any more spacing.

After the lines running in one direction are all properly spaced, start from the other angle and lay out your cross lines with the spacer, and after these are all in place, take

the deepening tool and deepen all the lines, bringing the diamonds up to points. After all lines are the same depth, take the bent file and smooth up all the grooves, handling the file lightly.

A border may or may not be made around your checking, just as you desire. If you have been careful and have not run the checking tool over the line at the end, a border is not necessary and the checking may look better without it. If the tool has been run over the line at a number of places, a border line outside of the checking design will improve the looks. This border line may be spaced from the design with the regular spacing tool you have used to space the checking, or you can use a wider or a narrower tool. Sometimes a fancy border is desired, and this can be easily made by getting from your dentist some old drills of round-end design (ball-shaped), straight fluted drills, and drills of dovetail shape. After making a border line around the checking, allowing the proper space to take the impression of the ends of these dental drills, take a light hammer and tap the ends of the drills into this border space, alternating them in any way you like.

After the forearm checking is complete, choose a similar design for the checking on the grip. In this case it is best to draw the design on paper, cut out the outline, and transfer it to the grip. You can fasten the design on the grip with pins, and use a hard, well-sharpened pencil to draw around it. Do not attempt to run the checking very far around on the under side of the grip, for this gets you into reverse curves which are very hard to handle. Leave an unchecked space of about an inch on the under side of the grip. The checking can be run over the top of the grip if you like, but divide it right down the center (on top) with a single groove. This looks well and makes the job much easier than running continuous lines over the grip from side to side. Or if you desire, and are using a three-panel design on the forearm, a narrow rounded-end panel may be checked on top of the grip, separated from the side panels as on the forearm.

If you are using a conventional design on the grip, with the swallow-tail opening at the front, the angle at which the two sides of the vee meet determines the angle of your diamonds, so draw your design accordingly. Each of these

side lines of the vee are prolonged across the design, and become the two master lines from which you work. If your design is a rounded-end type, then your diamonds are made from two master lines drawn at any point inside of the outline of the panel, and at the proper angle to each other to form the desired diamonds.

After the diamonds have been smoothed up with the bent file, a little rubbing with a wad of fine steel wool will give them a polish, at the same time taking off any fine rough edges that may be left on them.

Checking is not done until after the stock has been oiled, as it is easier to oil the stock while it is all smooth; also it is difficult to properly oil a stock right up to the edge of the checking without having some of the oil run over into the checking—from which it is not easily removed if it once sets. Furthermore, the lines cut with the checking tool are easier to see on an oiled surface than on raw wood, and checking is hard enough on the eyes as it is.

Soft stocks, such as the Service and Springfield Sporter stocks, are too coarse-grained for checking much finer than twenty lines to the inch; in fact, eighteen is better. Twenty-two or twenty-four lines to the inch look much better, if the stock is hard enough to stand it. The coarser the checking is, the deeper the grooves must be to bring the

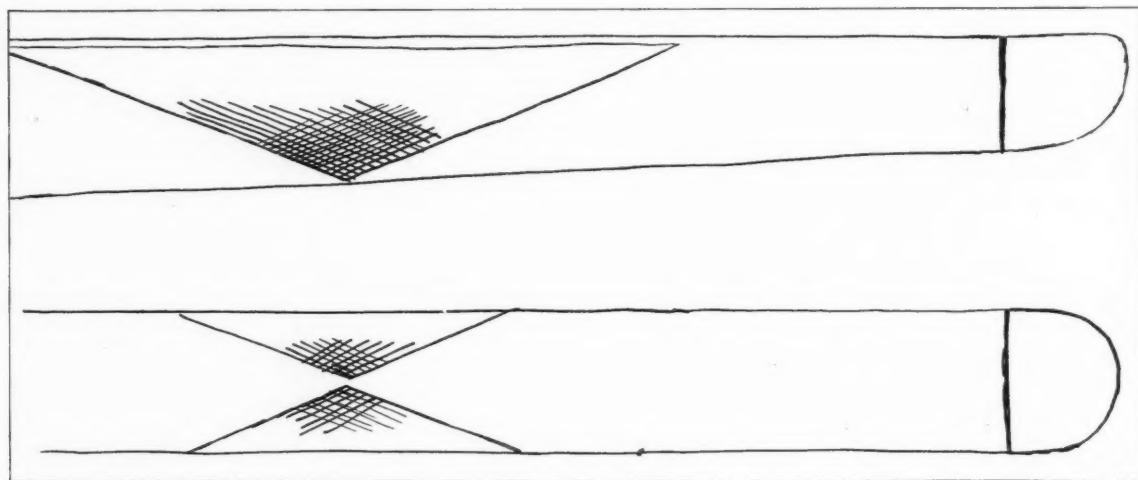
diamonds up to points, so coarse checking cannot be done much faster than fine checking.

When your checking tool becomes too dull to cut well, heat it red hot and allow it to cool in the air to anneal it, when it can be resharpened by the same method used in making it. It is then brought up to red heat, and plunged into brine to harden it.

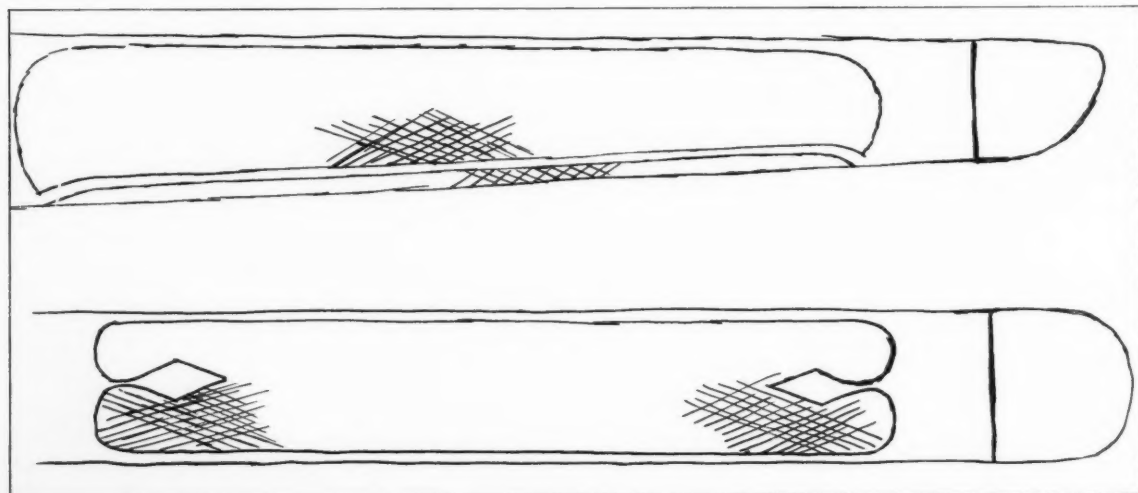
Sometimes, especially in checking on rather soft wood, one or more diamonds will break out. Small holes should be drilled at such points, and walnut pegs glued in place, new diamonds then being cut in the pegs.

I have seen plastic wood recommended to replace broken-out diamonds, but it is too brittle to check, and will break out under the tool. However, if duPont Household Cement is added to the plastic wood it toughens it greatly, and diamonds cut in this mixture will stand up very well.

And now, with our Enfield Sporter job about completed, and the Great Outdoors calling again, I guess this will be all for a while. I hope that those of you who have undertaken this Enfield job have enjoyed the work, and have been satisfied with the results; and that all who have been following these notes have gleaned a few bits of useful information from them. So I'll be saying good-bye for a while, hoping to be with you again later on.



Above—Simple triangle design for checking on forearms. This design is recommended for the beginner because of its simplicity. Below—An example of the three-panel design for forearms. This is also a good design for beginners



THE .357 S. & W. MAGNUM

An Open Letter

WE REGRET THAT DOUG WESSON read into our March article an attempt to belittle the .357. On the contrary, we unstintingly praised it as a splendid revolver cartridge.

To make our position clear—

(1) We consider any one-hand gun to be unsuitable for humane big game shooting except perhaps in the hands of a very few outstanding stalkers and experienced experts like Doug Wesson.

(2) We believe that the efficiency of the .357 cartridge is improved when fired in an 18-inch carbine and that under such conditions the .357 becomes a "deer rifle" approximately equal in power to the .32-40-165 H.V.

F. C. NESS.

MR. FRED NESS,
The American Rifleman,
Washington, D. C.

Dear Fred:

I have just had the pleasure of reading your most interesting article in the March issue of the RIFLEMAN on the S. & W. ".357" Magnum and I hasten to tell you what an impression it made on me, not only on account of the nice things you said about the Magnum, but from the technical standpoint as well.

Frankly, that steel plate had me baffled, not only baffled, but mystified, and, to confess the truth, quite skeptical as well. Let's give a calm, judicial survey of just what the conditions were as set forth in regard to that so-much-to-be-questioned "mild steel plate." To quote: "We had a 3 16-inch steel plate ("such as mild steel") which the 45 grain Hornet bullet had deeply dented at 50 yards at about 2,000 f.s. remaining velocity." That gives us the first chance to get our teeth into a tangible proposition—we have a lil' pee-wee 45 grain bullet with a figured energy of slightly under 400 foot pounds "deeply denting" this plate.

Now in the same paragraph we find "Hornet bullets from a Sedgley-Colt S. A. revolver, at 1650 f.s. m.v., would penetrate it at 20 yards." Now *there* is where I got all hot and bothered—one Hornet bullet at 50 yards with a developed energy of 399 foot pounds deeply dents this curious plate, while the second, packing a load of 272 of the same sized foot-pounds at the muzzle penetrated it at 20 yards! Something it et, no doubt.

But hold, wonders are yet to be unfolded—conclusions are drawn from this upsetting ballistical phenomenon. I quote: "This led us to believe that even the longest revolver was too short to develop the maximum potency of which the .357 Magnum load was capable." Now this translucent gem of logic follows from a sequence in three parts:

(1) A greater energy with a given bullet dents a plate.
(2) A lesser energy with a similar bullet penetrates the same plate.

(3) (A new one, but in the same paragraph) a 158 grain bullet developing *over twice the energy of either of these two Hornet bullets* "faintly dented the surface of the plate."

Something *must* be wrong, in fact something is wrong, and in justice to the Magnum I believe you should give this space in the RIFLEMAN.

On a 3/16" "mild steel" plate we find at 15 yards the following results (you will note we went well through the higher handarm's bracket of loads):

	Front of Plate	Back of Plate
.45 S. & W. Schofield (b.p.)	.081 deep	.065 high
9 MM Luger	.090 "	.067 "
.45 Government Auto	.104 "	.079 "
.45 Colt (black powder)	.150 "	.115 "
.44 / 40	.187 "	.142 "
.38 / 44 S. & W. Special	.205 "	.152 "
.38 Super	.230 "	.182 "
.357 Metal Tip	.405 "	.369 "
* S. & W. ".357" Magnum		
(WRA)		.420 "

* In this case the indentation was sufficiently deep to allow the bullet to remain imbedded in the plate flush with the surface.

I take this opportunity to mention a fact that may not have been called before to your attention; as there is but one true Magnum revolver, the SMITH & WESSON, it is equally true that there is but one S. & W. ".357" Magnum cartridge, and that is the one developed by the Winchester Repeating Arms Co., working many months with us. Incidentally, that Magnum shell is .135" longer than the standard .38 S. & W. Special.

At this point I am about to lay myself wide open—I know it's bragging, but just the same when you say that I have proved "at least to my own satisfaction" that the S. & W. ".357" Magnum "will kill big game," and then add that as big game have been killed with "the lowly .22 rimfire" I have proved nothing, I can't help but believe that you are not aware of what I have done with the Magnum. As I have made an honest effort to determine in my own mind the worth of the Magnum as a big game weapon, I feel warranted in stating briefly what I have accomplished:

Antelope. 3 shots. First, superficial wound in flank, offhand approximately 75 yards. Second shot through both flanks at 235 paces. Animal put almost down, recovered, went about 200 yards, went down and waited for finishing shot at approximately 30 yards.

Elk. One shot through chest and lungs. Approximately 135 yards. Went about 300 yards. Flesh wound second shot in flank, jumped and fell dead about 30 yards beyond.

Moose. One shot at 100 to 110 yards through chest, straight lung shot, not touching heart or liver. Moose turned and went back about 30 yards. Fell dead. Bullet recovered—upset to over .50 caliber at nose—about 30 grains loss of weight.

Moose. High shoulder shot passing through both shoulder blades and cracking vertebrae. Second shot in flank. Moose went down after about 400 yards. Finishing shot in head. Exit wound shows clean hole approximately 1/2" diameter.

Grizzly Bear. About 115 yards. One shot base of skull, splitting skull and shattering the first vertebrae. Bear set back about two feet and dropped. Killed instantly. Bullet recovered under skin high on opposite shoulder. Upset and distorted by bone. About 40 grains loss in weight.

Now those animals are the ones I have shot with the Magnum, and I am confident that I wouldn't have that

record with a .22. Of course I've hunted hard and had tremendously good luck, but it's sport, Fred, it's wonderful sport—I can well understand anyone envying me my good times and my good luck; but why belittle the gun. Father Hubbard, the biggest walrus in the Bering Sea the last season—Sasha Seimel and his 350 lb. tiger in the wilds of Matto Grosso, Helen Post's tapir in the same place. W. H. Sykes III knocking a wildebeeste off its feet at 100 yards. All with the Magnum, Fred, not with a .22.

As long as I'm in this mood I'm going to mention another little point; you refer to "the rather loose-fashioned breeching, typical of most revolvers." As you are discussing the Magnum you realize, of course, the unavoidable implication that it has a wider tolerance at that point than some others. A small point, I grant you, and put in a small way but I challenge the implication.

Cordially,

D. B. WESSON,
Vice-President, Smith & Wesson, Inc.

WHEN YOU CAN'T LIE DOWN

(Continued from page 18)

in many ways the most interesting of all, and those of you who are interested should read that fine article by Harry Pope published in the July 1, 1922 issue of *Arms and The Man*. Also read the chapter on Free Rifle Shooting in the late Captain Crossman's book *Military and Sporting Rifle Shooting*.

Dr. W. G. Hudson, one of America's greatest offhand rifle shots, in his book *Modern Rifle Shooting*, published in 1903, wrote of Schuetzen shooting as follows: "It must not be supposed, however, that Schuetzen rifle shooting is of no value to riflemen who aspire to honors with the military or long-range rifle. It has the advantage of using cheap ammunition, it is generally done on ranges provided with facilities that insure comfort to the shooter during even the coldest and most disagreeable weather, and it is the best possible training for fine holding. There are a large number of civilian riflemen who confine themselves almost entirely to this kind of shooting, and who are nevertheless very well posted and skilled riflemen, able to take up other branches of rifle shooting at short notice; and their skill in holding, and intimate knowledge of many of the technicalities of the rifle learned by long and careful practice with their own weapons, certainly puts them far in the lead of the novice, no matter what other branch of rifle shooting they adopt."

This article is being written upon my return from the Colorado Rifle Club range, where a group of members have been stoking the big stove, and testing their skill as holders and wind-dopers, in an effort to outguess a wind-driven snow storm. And if any of you think that bucking a stiff-flag wind—soupy with swirling snow—with a .22-caliber r.-f. Schuetzen rifle at 200 yards offhand isn't a game worth the best any rifleman has in him, you had better think again. To lend variety there were two Springfields there, and believe it or not, the .30-calibers didn't have much on the measly little twenty-two's!

Offhand is the one position above all others that requires practice—eternal practice. I believe it was Walter Stokes who once wrote that the hands of the best Swiss offhand shots were calloused from handling their rifles. You can "dry practice" in the standing position almost anywhere where you can stick up a mark to aim at. Aiming and rapid-fire dry practice at small pictures of game animals is excellent for the deer hunter. Just try it and see what a

difference it will make in your field shooting, especially in the standing position.

Offhand skill is a matter of perfect coordination of mind and muscle. "You got to learn to stand still," Bill Bruce says. Certainly you can't wiggle and wriggle around like a snake, and do even fair shooting offhand with a rifle. Offhand is a phase of rifle shooting that anybody who can stand erect, and has fair eyesight, can take part in. Some of the most enthusiastic offhand shooters I know are men well past middle age; for, as Bruce says, "You don't need a football uniform to shoot offhand; you can wear your good clothes if you want to."

The sporting chance that still exists in offhand rifle shooting should be a lure for the new-comers in the sport. It isn't the hard-boiled machine game of the prone shooter, where five points are often all that separates the top and bottom men in a match, and it opens an avenue of almost unlimited variety in rifles and contests.

Apparently some people think that offhand is a game for ancient and rusty single-shot rifles; something in line with throwing rocks at cats in the dark. However, the Rand (Colorado) Rifle Club use nothing but Winchester 52's (Oh yes, there is one fine Stevens Schuetzen rifle in the lot). At the Colorado Rifle Club the boys shoot everything: Springfields, Winchesters, Stevens, Sharps (both hammer and hammerless), Ballards, Remingtons, Savages, Mausers with now and then something really ancient showing up. These rifles are all shot offhand hunting-style and Schuetzen.

But one could go on forever, almost, discussing offhand rifle shooting. Yours truly admits that as a kid he was taught offhand by men who knew. He supposed it was a disgrace to shoot a rifle from any other position, and it was a long time before the prone position seemed fair play except for testing or sighting-in a rifle. This beginning did not make even a putty-blower champion of me, as a perusal of any list of rifle champs for the past 100 years will show, but it did develop skill enough to do a fairly decent job of game shooting whenever the occasion required.

The Chapman picture referred to



OVER THE NEWS DESK

1939 REGIONAL TOURNAMENTS

As announced in the May RIFLEMAN certain of the Regional Tournaments have been definitely established for 1939 while details of others have not yet been completed. Many shooters we know plan to attend Regional Tournaments and for their information we publish below details of each tournament at the time of going to press. Be sure to take your N. R. A. membership card with you when going to a Regional Tournament.

Far Southwest Regional

Includes the states of California, Nevada, Utah and Arizona.

The Small Bore Rifle Tournament will be held in Richmond, California on July 21, 22 and 23.

The Pistol Tournament will be combined with the State Matches and held in San Francisco, California on July 14, 15 and 16.

For programs of either tournament write L. A. Pope, 532 Oakford Drive, Los Angeles, California.

Far Northwest Regional

Includes the states of Washington, Oregon, Idaho, Montana and Wyoming.

If present plans are completed the Small Bore Tournament will be held at Portland, Oregon on June 10 and 11 in connection with the Oregon State Matches. Write Leslie T. St. Clair, Gresham, Oregon for programs.

The Pistol Tournament will be held in Seattle, Washington August 11, 12 and 13 in connection with the Annual Northwest Tournament. Write Walter F. Day, 2339 43rd N., Seattle, Washington for programs.

Southwest Regional

Includes the states of Texas, New Mexico, Colorado, Kansas, Oklahoma, Arkansas and Louisiana.

Present plans are for the Small Bore Tournament to be sponsored by the Dallas and Fort Worth Rifle Clubs and held in Fort Worth on July 29 and 30. Write either McLeod Great-house, 1130 Washington Avenue, Fort Worth, Texas or George Spurlin, 5922 Bryan Parkway, Dallas, Texas for programs.

Due to lack of sufficient time our original plan to combine the Regional Pistol Tournament with the Texas State Pistol Matches has not materialized. Therefore pistol competitors from Texas, New Mexico, Colorado, Kansas, Oklahoma, Arkansas and Louisiana may compete in any Regional Tournament they choose and be considered an eligible competitor for that region. Should anyone compete in more than one Regional Pistol Tournament this year he will only be eligible in the first one to win prizes in the Regional Aggregate.

North Central Regional

Includes the states of Minnesota, Iowa, Missouri, Wisconsin, Illinois, Kentucky, Indiana, Michigan, Nebraska, North Dakota and South Dakota.

Both the Rifle and Pistol Tournaments for this region will be held at Rockford, Illinois on June 9, 10 and 11 in connection with the U. S. Grant Memorial Matches. Write to Michael Gawron, 3434 N. Avers Avenue, Chicago, Illinois for programs.

Southeastern Regional

Includes the states of Tennessee, Mississippi, Alabama, Florida, Georgia, North Carolina and South Carolina.

The Small Bore Tournament will be held in Atlanta, Georgia on July 28, 29 and 30. Write G. M. Sweeney, 1183 Oak St., S. W., Atlanta, Georgia, for programs.

Present plans are to hold the Regional Pistol Tournament in Coral Gables during July combined with the Florida State Pistol Matches. For programs write Clem Theed, Box 43, Coconut Grove, Miami, Florida.

Eastern Regional

Includes the states of New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, West Virginia and Ohio.

Both the Small Bore Rifle and Pistol Tournaments will be held at Camp Ritchie, Maryland from June 30 to July 4, combined with the Eastern Small Bore Association Matches. For programs write Tom Davis, 69 Warren Street, New York City.

New England Regional

Includes the states of Maine, New Hampshire, Vermont, Massachusetts, Connecticut and Rhode Island.

Present plans are to hold the Small Bore Tournament at Fort Devens, Massachusetts, July 15 and 16 in connection with the Bay State Small Bore Tournament. For programs write Paul Foster, 324 Western Avenue, Lynn, Massachusetts.

The Pistol Tournament will be held in Auburn, Maine on July 22 and 23 in connection with the Maine State Pistol Tournament. Write John M. Lane, 131 Bishop Street, Portland, Maine for programs.

PERSHING TEAM TRY-OUTS

As we go to press, wires to this office announce winners of the eight regional tryout matches:

Pasadena, California:

John Miller, Glendale, Calif.

Fort Worth, Texas:

R. C. Pope, Dallas, Texas.

Waycross, Georgia:

Carl Jackson, Atlanta, Ga.

Des Moines, Iowa:

Carl Frank, Rochester, Minn.

Fort Sheridan, Illinois:

Willis Kenyon, Michigan City, Ind.

Bowling Green, Ohio:

Merle Israelson, Akron, Ohio.

Erie, Pennsylvania:

John Wark, Buffalo, N. Y.

Sea Girt, New Jersey:

H. D. Allyn, Springfield, Mass.

"ARMS COLLECTORS OF THE U. S."

Virgil Ney, himself an arms collector, is engaged in a work that should be of considerable value to the many collectors of ancient firearms scattered about the United States. He writes:

"About my book, the story is simply this—For years there has existed the need for a directory of gun collectors. For quite some time I have been compiling such a directory, solely with the thought of its value to the collector in making trades by mail and gaining contacts with fellow hobbyists while traveling. As you know, arms collectors have a great common bond, whether they are from north, south, east or west. 'Arms Collectors of the U. S.' will foster this bond."

If Mr. Ney's volume is to be a success, and to be a success it must be reasonably complete, every arms collector who reads this notice will have to spend a penny for a postcard, take time out to fill in a few facts about what he specializes in, put his name and address on it, and send it to Virgil Ney, 2745 Browne Street, Omaha, Nebraska. If we all help out, some time not too far distant should find us in possession of a real directory of the fellows all over the country whose fun consists of rescuing and cleaning up old-time guns and giving them an honored place in their homes.

TIMED FIRE with Bill Shadel

Those Midwestern pistol shooters who passed up the Kansas City Heart of America matches April 24-28, missed a shot at some of the neatest trophies—(twenty of them for twenty matches)—and medals (a total of 183) we've seen anywhere. But next year just try and pass it up. Money prizes for hot-shots, travelling expenses, and classifications allowing for medals in all divisions. You can be sure, if plans go through, it will be one of the calendar's big events—indoor course up to fifty yards in conjunction with a great horse and sports show.

Word from Jackson, Michigan, following last August's prediction of an elaborate range development, mentions dedicatory matches June 11. "New sixty target range will make Jackson the pistol shooting capital of Michigan," says promoter Roscoe Gray. Also intriguing is this sentence "control house contains the system for swinging the targets into place during matches much the same as a railroad switch." The jubilee banquet of the Jackson Revolver club, ten years of active organization, was prefaced by a visit to this new range on the part of visiting notables.

A stop-over at Indianapolis cleared up any misconception of target shooting interest there. A group of about twenty-five representatives of four civilian clubs, sheriff's office, state police, city police, and national guard indicated need and desire for a super-range which will undoubtedly be built through WPA help. Target shooters there will want to get behind this movement as the time seems opportune.

The first attempts to enact the newly drafted "Uniform Firearms Act" sponsored by the "Interstate Crime Commission" have been successfully repulsed. This bill, which provides for the finger-printing of gun licensees, ten dollars a year fees for arms dealers and a special "target shooters license" for pistol marksmen, was introduced in New Hampshire, Wisconsin and Maryland. It met with such stubborn opposition on the part of interested shooters at hearings conducted in the first two states that it has been tabbed as being "inexpedient to legislate." Its Maryland sponsors were a little slow for it was not introduced until after a more lenient and logical measure had been already passed by both houses.

New Bedford, Massachusetts has probably one of the most elaborate ranges built lately with WPA assistance, ten firing points at 200 yards; four at 300; four at 500; four at 600 and provision for 800 and 1,000 yard firing. Twenty targets for small bore; forty for pistol with running man and four bobbars, additional.

The Fort Pitt Rifle Club of Pittsburgh has just sent in an attractive sixteen-page program of their 34th annual season. Organized in 1906, it is one of the oldest N. R. A. affiliated clubs. Opening April 29 and continuing through October 21, they offer on every Sunday of that period probably the most diversified program of events that's possible to schedule. C. W. Frehling, 1118 Woodland Avenue, N. S. Pittsburgh, invites shooters to request programs.

Here are some scores for gallery shooting that sound about tops. Four position five shots each, the Irwin team of the Pittsburgh and Suburban Rifle League totaled a 970 for their five men. Is there a challenge?

And now Connecticut takes up night shooting with the organization of the "Midnight Rifle League" in Middlefield, where the Lyman Gun Sight Corporation has their lighted range. Twelve teams started off the schedule April 24 and will continue nightly into the latter part of September.

—so they tell us:

OLD TIMERS

SIRS:

I have been waiting for some old timer to announce that his subscription to *The Rifle* began with the May 1885 copy, which was Vol. 1, No. 1. So far, no one has appeared. While I cannot qualify, I come within one of it. My subscription began with the June, 1885, issue. When I learned that *The Rifle* was being

issue, published in Boston, consisted of eight pages, featured a list of American shooting associations. Among them was the "National Rifle Ass'n," which at that time had no connection with *The Rifle*. With Vol. 3, No. 12, April, 1888, *The Rifle* suspended publication, was shortly on sale again as *Shooting and Fishing*, a 16-page weekly, incorporating fishing and hunting news as well as rifle and pistol material. The last issue of *Shooting and Fishing*



Number two of 1,993 issues; Reader Whiteford's first

published, I sent my subscription, with the request that it begin with the May number. I received a reply saying that the May copies were sold out, and that I would receive the June number (see cut) to begin with. My subscription has not been continuous, for while out in the mountains of the Northwest during the publication of *Arms and the Man*, a break occurred. Again a few years ago, during the Depression, I missed out on a few numbers of the *RIFLEMAN*. With the exception of the missing *Arms and the Man* issues, I have read every copy from June, 1885, to date. Some good brother riflemen loaned me their copies of *THE AMERICAN RIFLEMAN* where I was lacking.

I expect to continue *THE AMERICAN RIFLEMAN* until I have to quit for good, for to me it is the only real rifleman's publication. Oklahoma City, Okla. W. T. WHITEFORD.

SIRS:

Some months ago you asked if the record of Byron Lacy of Elmo, Arkansas, as 50 years a reader of *THE AMERICAN RIFLEMAN*, still stands. When I was a young man back in the 1880's, I knew Mr. A. C. Gould quite well in Boston, Massachusetts, and when he started to publish "The Rifle" I was one of the early subscribers and have kept it up ever since. In fact, I had all the old numbers of *The Rifle* up to 17 years ago when I moved here from Malden, Massachusetts. Dowagiac, Michigan. A. O. NIEDNER.

• Adolph Niedner, famed rifemaker, undoubtedly holds the record for length of subscription to *THE AMERICAN RIFLEMAN*, with Reader Whiteford running a close second.

In its 54 years of publication *THE AMERICAN RIFLEMAN* has had a checkered career. In May, 1885, A. C. Gould, who, under the name of Ralph Greenwood, had already established himself as a writer of shooting material, started a monthly magazine called *The Rifle*. His first

was dated December 6, 1906. With the following issue, General James A. Drain became editor-in-chief; the magazine once again changed its title, this time to *Arms and the Man*. With the issue of June 29, 1916, occurred perhaps the strangest incident of its career. General Drain, unable to make ends meet, decided to suspend publication of *Arms and the Man*, finally reached an agreement whereby the magazine was to become the property of the National Rifle Association. The publication changed hands at a price of \$1.00. Still a weekly, it continued under the leadership of General Fred H. Phillips. N. R. A. secretary, was edited by Kendrick Scofield. In 1919 it was changed from a weekly to a semi-monthly magazine, and finally, in 1926, to a monthly publication.

This issue is, if we have counted correctly, the 1,993rd published since May, 1885. The magazine has been published in Massachusetts, New York, and finally in Washington. Originally a rifleman's magazine, it lost for a time its original character, was highly flavored by National Guard connections. It has run the gamut, however, and now, more than ever, is back to the point at which it started, a journal for the rifle and pistol shooters, the oldest sporting magazine in the country, published by the nation's oldest sportsman's organization.—Ed.

A GUY NAMED PEASE

SIRS:

I want to tell you about a guy named Pease . . . Lester Pease. Pease has been enjoying the small-bore game for a long, long time. He has the honor of Harry Pope's friendship, the confidence of Kaufman (Schuetzen) and the ear of Winchester's peripatetic Hession.

Pease belongs to our club; came in some eight months ago, since he needed a place to shoot in our neighborhood; his work, you know. For a number of years he was a member of the Connecticut State Smallbore Team, and is widely known as an excellent four-position shot. I speak of these things to get across the idea

that Pease is no slouch with his heavy "52."

Lately the beggar has gotten the idea that he's past the peak of his competitive shooting days. Not that he's going to hang up his rifle; he's not! But he wants to devote more and more of his time to building up the offhand shooting averages in our outfit. He sort of likes our place; thinks it runs more average good guys to the panfull than the more primadonna clubs he's haunted in the past.

And do you know, that damned rascal can coach! No hair-tearing, no shouting; just cool, confident coaching that gets under your hide and starts pushing up the old scores. Pease has the idea in his head that New Bedford is going to take over the South Shore Rifle League next winter, despite the fact that the Baker Club of Brockton have set the pace for the last half-dozen seasons. And the darned monkey has got us believing it, too. It's a two-position league, prone and offhand. Our offhand scores are getting up into the 216 to 229 x 250 strata at 25 yards indoors.

There must be plenty of men who have been scrapping for years to reach the top in the small-bore game; if half of them, when they feel they've had enough, could find the disposition and time to devote to intelligent coaching in some live-wire club, they'd find a whole new field of satisfaction opening to them.

It's one thing to hold 'em and squeeze, and watch them pile up in the X-ring. It's another thing to watch a team you've prayed with, pleaded with, cursed with and slept with forge to the front in a hard-fought match. And both things are necessary to the game.

Yessir, we'd have had a hard time doing without old "Pappy" Pease up at our place. New Bedford, Massachusetts. E. M. WILLEY.

• Our hat's off to Lester Pease . . . and to all of the other good fellows whose efforts have been directed toward improving and furthering this shooting game of ours, even though it meant giving up their own participation to devote their time to the promotional and training ends of the job . . . to H. D. Erk, of Columbus, who never was a shooter, but who puts in endless hours grinding out publicity that the game may not remain anonymous . . . to the late Ed Cooke, sec'y. of the Connecticut State Association, who gave up shooting to become the hardest working shooting promoter we ever knew . . . to Russ Lent, who seldom shoots, he's so busy teaching other people how . . . to Everett Willey himself, who feeds the Massachusetts papers reams of copy on local events . . . and to all of the many others whose efforts are so splendidly and unselfishly furthering the cause of the rifle and pistol games. These fellows are the backbone of our sport, and whether we know it or not, there are dozens more who plug along, not shooting, not winning any of the prizes or glory for themselves, but better content to make it possible for some other fellow to do it. They're a grand crew, and this shooting game wouldn't be much without their kind.—Ed.

ASTRONOMY STUDENT

SIRS:

After reading "The Old Coach's Corner" in your April issue I was reminded of a little experiment I made about 25 years ago and my attempt at holding the muzzle down will probably give the venerable Old Coach a laugh.

At that time there was a good deal of discussion about the recoil and the tip-up of the muzzle in handguns affecting the accuracy of the bullet, so I put up a small target about 45 feet away at the bottom of a young mountain (in Colorado), then I sat down on the ground with my back against the house, gripped the gun, a .45 Colt S. A., using a blackpowder cartridge, with both hands with all the strength I possessed and steadied my elbows against the sides of my body—endeavoring to keep the muzzle from tipping up—and let go.

At the report the muzzle of the .45 tipped up, of course, and the front sight cut my forehead, drawing blood and new material for additional study in astronomy was revealed—but the bullet centred the bulls-eye, somewhat smaller than a silver dollar.

Miami, Florida

GEORGE LUNDSTROM.

Tournament Reviews

NIAGARA FRONTIER PISTOL MATCHES AT BUFFALO

After reading the feature article about "Tampa," with its fanfare of trumpets, its glamour, and its Chamber of Commerce, we are at a loss to understand what ever was responsible for even a hundred and thirty handgun addicts allowing themselves to be corralled in as unromantic a place as Buffalo in April, and to be rammed through a two-day program of twenty-one matches in a half-finished indoor range—pardon us, gallery—with no warm zephyrs waving the leaves of the non-existent palm trees, and no reception or entertainment committee to look after their requirements along those lines except Hanny's across the street.

As a matter of fact, they would have been gluttons for punishment if they could have gone any farther than their respective beds, after finishing the "International Match" around 2 A. M., Sunday. Actually, an average of close to fifty competitors fired in fourteen matches, exclusive of aggregates and doubles, and we begin now to understand why we had a total of five hours sleep over two nights. The fact remains, however, that they all had their chance on the line, and were successful enough that, of the five Buffalo-made indoor records taken by the Baltimore tournament last January, three came back to Buffalo, and one more came half way.

George C. Knight of Buffalo broke George Young's three-year winning streak in the .22 Slow Fire Match, and copied first place with a 183. .22 Timed Fire went to C. E. Schetter of Akron with 194, and A. J. Reiman of the Detroit Branch of the U. S. Immigration Border Patrol, set up a 191 for a new record in Rapid Fire, ranking Lew Sanderson, who had the same score. Joe Wilkinson, one of Reiman's team mates, followed suit in the three stage with 98-98-93-289 for another record. Loretta Meier won the Ladies' Slow Fire with 163. The .22 Aggregate went to W. F. Woods of Akron, who totaled 834 over the four matches included, and he and his Goodrich boys walked off with the .22 three-stage team event. Toronto Revolver Club, as usual, had little difficulty with the Any Calibre Slow-Fire team match, and their 708 was good enough.

The Niagara Frontier International Match was won this year by the American team by a narrow margin of seven points, and once again our hats are off to the Canadians, who could draw from only about twenty per cent of the competitors.

Lew Sanderson's 180 was high in Slow Fire, and Woods of Akron went to town in Timed-Fire with 193 for a new record. Jimmy Heron's 184 rang the first bell in Rapid, and his 276 in the three stage brought home another new record.

Sanderson charted 820 to pull the Center-Fire Aggregate out of the coals, and 1643 to cinch the Grand Aggregate. Detroit Police came through in the final three-stage team match with 1019 for top honors.

We deeply appreciate the interest which was responsible for the record-breaking attendance at this shoot, and we sincerely hope that everyone had a most enjoyable time, and that we will be able to offer greatly improved facilities for handling an even larger attendance next year.—WALLACE A. BEATTIE.

MARIETTA SPRING SMALL BORE SHOOT

So far as T. K. Stratton of Ridgeway, Pennsylvania, is concerned, the Fort Harmar Rifle Club's first spring registered rifle shoot, April 29 and 30, was a huge success. For Kenneth Stratton, a mild mannered, broad shouldered youth with only two years of registered competition behind him, dominated the big two-day shoot that was concluded here Sunday like a cannon dominates a pop-gun. Competing against a field of 70 of the toughest top-flight shooters, the Pennsylvania youngster turned in one of the most consistently accurate shooting performances

ever seen here or anywhere, with the weatherman doing all in his power to upset performances. He ran away from the field by scoring first in seven out of 12 matches in the two day shoot. This included winning the shoot's Grand Aggregate, or a total of scores of matches 1 to 12. Stratton's grand aggregate score of 3126-102X was 130 points better than that of his nearest competitor, Wm. Patriquin, another Quaker State entrant from Ernest, Pennsylvania. In third place was Eugene Huff of Coshocton, Ohio. Stan Grooms of Grove City, Ohio, finished fourth and George Hewson of Marietta fifth.

Young Stratton's marksmanship was all the more remarkable considering the weather handicap which he and his competitors faced on Sunday. A strong, veering wind sent most scores toppling—all save Stratton's. He just kept on bagging practically every honor in sight. Two Marietta shooters, members of the Fort Harmar Rifle Club, finished in top money during the two-day shoot, no mean accomplishment considering the class of field. J. E. Miller took first-prize money in the Individual short and mid-range match with a score of 399-17X. In this match Stratton was second with 397 and W. L. Lawrence of McConnellsville, Ohio third with 396-18X. George Hewson of Marietta was top man in match 7, individual 50 yard, with 399-30X. W. L. Lawrence was second with 398-30X, Stratton third with 398-25X.—L. R. MILLER.

NORTH CENTRAL OHIO RIFLE AND PISTOL MATCHES

The N. C. O. rifle and pistol matches attracted 114 shooters from thirty-six different towns and cities this season as compared with 85 entries last year. The Ashland Rifle & Pistol Club, sponsors of the tournament, seemed to have made it the kind of competition the shooters of Ohio like to come back to. The club received commendation from a large number of competitors as well as from the N. R. A. official representative, Mr. Evan Lloyd of Columbus, Ohio.

Probably the outstanding feature of the two-day tournament was the winning of the three-position match and rifle aggregate by Tyro Bob Tanner of Sebring, Ohio, who competed with veterans of years of small bore shooting. C. E. Hall of Lorain and W. F. Woods of Akron hung up new range records in the two Slow-Fire pistol matches and A. R. Fellabom of Lakewood, Ohio, turned in a good 260 to win the three stage Center-Fire pistol match. Hall scored 182 with the Center-Fire pistol and Woods 183 with the .22.

The standing match developed into a duel between L. S. Barr of Mansfield and C. W. Hasenau of Cleveland, both firing 186. Barr had a 96 and 90 while his rival, Hasenau had 95 and 91. It took the Creedmoor system to settle that one, Barr winning.

In the prone re-entry match five men were tied with possible 300 scores, plus two more making possible 500's, necessitating a five-way split of the money.—S. M. MARTIN.

NORTH CAROLINA CHAMPIONSHIP

For the past several years the North Carolina State Small Bore Tournament has been held in Kannapolis, but this year the State Association moved the matches to Gastonia. Gastonia showed the competitors (58 in all, well over any previous attendance) a fine range, fine weather and a well rounded two days of shooting. Next year's tournament location will be announced later and will probably be neither Kannapolis or Gastonia as the idea is to change ranges in order to build up interest throughout the state.

Now for some of the matches—

E. H. Warren of Kannapolis and Henry Van Sleen, Sr., (be sure and note that Sr. here—Van's boy Henry, Jr., is shooting now and pushing Dad pretty hard sometimes) fought it out in the first aggregate for the Kannapolis Rifle and Pistol Club's trophy. When the scores were totaled a "photo finish" was found with the same numerical score and the tie had to be

broken by the 100 yard X's. Warren had 3 over Van so the trophy went home to Kannapolis for another year at least.

Van Sleen and Warren were first and second in the North Carolina Championship Aggregate but this time Van finished on top by 7 points.

To interest the new man in tournament shooting the North Carolina program this year had an aggregate open only to shooters who had never placed above eleventh position in any open competition. Henry Reid of Hampton, Va., should have been there, too, in order to award the trophy he gave to the winner as it was nip and tuck all day Saturday to see who would be the winner. Jim Trent of Knoxville finally nosed out his team mate R. A. Monroe with 1166 x 1164.

Capt. T. J. Walker doubtless covered the most miles going to the tournament, having left his post in Panama some weeks before. He won the 50 meter any sight individual, too, so the shooters around Fort Ethan Allen, Vt., please take note as the Captain's new post is up there.

L. D. Holbrooks of Kannapolis came through in the 50 yard individual, only dropping 2 points in the 40 shots, to win, thus removing himself as a future competitor in the Restricted Aggregate where he took third place this year, only 2 points behind the winner.

Capt. Rooney did a fine job out on the firing line and the ever-working Statistical Officer, S. K. Barringer, of Kannapolis, was all over the place taking entries, passing out squadding tickets, scoring targets and posting scores until he resembled a three-ring circus all by himself. Ken Beagle, the big shotgun and rifle man from Remington, did yeoman duty in the office so remember him in Carolina when you want some help running a tournament.—F. W.

SEATTLE PISTOL TOURNAMENT

At Washington state's first registered pistol match of the 1939 season, held on the Fort Lawton range April 30, many of the outstanding scores were turned in by novice competitors. Chief of these was L. E. Metcalfe, U. S. Customs, who led the field in the .38 caliber class with a 279. Shooting in the same match, Dick Trueblood, firing as a Tyro partner of Walter F. Day, Seattle Police Dept., shot his teammate into first place with a 262, eight points ahead of Day's 261, winning the Buddy team event ten points ahead of their nearest competitors.

Glen Gibbs of Raymond, Washington, another Tyro, took second place in the Army "L" Course match with a total of 299; M. R. Rogers, U. S. Customs, followed his usual procedure by taking four first places, including the grand aggregate, with a 835 score.

The match was well attended, with representatives from Victoria, New Westminster, Blaine, and a large delegation from the Southwestern part of the state.

HEART OF AMERICA PISTOL MEET

The "Big Tent" with all its three-ring circus and rough riding has nothing on the Heart of America Pistol matches, staged in connection with the Kansas City police sponsored Horse and Sports Show. The matches this year, their second, probably failed to capitalize on all of the features of this midwest attraction, but through no fault of tournament plans—only the unfortunate circumstances affecting Kansas City which broke just prior to the show opening. Nevertheless, the matches drew an attendance of 95. The whole setting of the show, of range accommodations, of department sponsorship, of merchants' co-operation, and, of course, the crowd of ten thousand each night which can scarcely avoid a visit to the pistol range before or after the big show in the arena, makes the tournament a natural.

F. M. O'Connor, Kansas City Police, as might be expected, stood out above all other individual performers. He managed to win seven out of the twelve individual matches, which gave him eight beautiful trophies—the aggregate adding another to his permanent collection. Four matches each day—.22 calibers Monday, Center-

Fires Tuesday, .45's Wednesday, with what is becoming the popular method of arrangement—a Slow-Fire match, a Timed-Fire, a Rapid-Fire, and then a concluding National Course match, giving a possible nine hundred points each day—allowed O'Connor to garner an unimpressive 2474 X 2700 for the three days. National Match course scores for top three were as follows: .22 caliber—O'Connor, 290; Bert Cline, U. S. Treasury, 276; M. N. Cobb, U. S. Coast Guard, 274. Center-fire—O'Connor, 279; Bert Cline, 278; Joseph Franano, K. C. Police, 276. .45 caliber—O'Connor, 271; Lloyd G. Ferril, K. C. Police, 266; Joe Franano, 254.

Jimmie Lawrence, the Kansas City police daredevil, who was rough-riding his motorcycle around the arena each night, riding through a reinforced board fence as the major thrill of the show, proved as nifty in his pistol shooting as he took the lead away from the veteran O'Connor in the second match of the meet, and proved steady enough throughout the three days of individual matches to place third in the aggregate just below motorcycle-mate Franano. Another K. C. police "youngster", Hugh Adamson broke into O'Connor's monotonous winning by taking the .45 caliber Timed-Fire match with a 185 over the monopolistic O'Connor's 183. The more travelled shooter, Joe Franano, was the only other to share these honors—taking the Slow-Fire center-fire with a 174; the Slow-Fire .45 with a 174; and the .45 Rapid-Fire with a 184.

The team matches on Thursday all went to the K. C. Police, heading the list of thirteen teams in the .22 caliber National Match course and also the Camp Perry match and taking the Center Fire and .45 caliber matches in a walk. The third place appearance in the center-fire National Match of the newcomers to registered competition, the St. Paul, Minnesota police; the showing of the Treasury team in second place of the Camp Perry .22 caliber match, and the second place 110th Engineer Officers in the .45 caliber matches provided the only flutter of news.

The use of all caliber of handguns on this indoor range was an innovation for the second year of these matches. The .22's still proved the most popular, however, drawing out various components of the 27 teams within the Kansas City area gallery league. With suitable classification next year, and attractive money prizes to make it worth the travel, the matches should attract a host of big names, and also the less experienced who will need have no fear of firing in anything but their own class of marksmanship.

NON-REGISTERED EVENTS

VERMONT—Gallery Rifle Tournament. With three new matches added to the program this year and the largest number of competitors ever registered at a state tournament, 84, Vermont's second annual Gallery Rifle shoot taxed the capacity of the Norwich University gallery range at Northfield on April 15 and 16. Even so, the last shot was fired by nine o'clock Sunday evening and the medals were awarded shortly after.

Earl W. Dawley of Brattleboro stole the show in the individual matches. Having an appointment to keep in southern New England early Sunday morning, Dawley registered as competitor No. 2, entered only the Championship aggregate and the three matches called for, fired them and was ready to leave the range before four o'clock Saturday afternoon, having fired a 199 in the prone match, a 185 in the prone-standing match, and a 179 in the 20 shot standing match. When firing was finished and the scores ranked, Dawley was the winner of the Championship aggregate, his 563 topping his nearest competitor by 13 points. His 199 ranked second high of five 199's in the prone match; he won the prone-standing match by one point, and his 179 in the standing match was 10 points higher than his nearest competitor for a decisive win. Dawley's 179 establishes a State off-hand gallery record that won't be easy to better.

There were plenty of new men present and they all took a hand at making real competition in the Tyro Match, 20 shots prone. Pearl Stark, a new member of the Claremont, New Hampshire Club, topped the heap with a 199, while Ray Hewitt of Rutland, Vermont, and Ray Freisinger of Norwich University took second and third places with 198's.

Junior shooting is just getting started in the state and all the place medals in the Junior Match went to competitors who won't be juniors much longer; Creighton Audett of Windsor winning with 197; Edwin Scott of Norwich University second and Russell Hartranft of Dartmouth College third. With another year's experience behind them, the youngsters who found it pretty discouraging this year, may find that the older they are the harder they fall.

"Buck fever" got in plenty of dirty work with the off-hand shooters, with much lower than expected scores in that position all through the tournament. Only 10 of 34 scores in the 20-shot standing match were 169 or better and the same proportion held in all matches including off-hand shooting. There are plenty of good off-hand shooters in Vermont, but they certainly fell by the wayside at this tournament.

The Five-Man Team Matches were split into A and B classes, with four teams entered in each class. The Claremont, New Hampshire Rifle Club team took the class A awards, while the Norwich University team won the class B award.

The Two-Man Team Matches were popular and closely contested, despite a lack of high scores. The team of Jack Taft and Doc Kingston of Barre, Vermont, who can always be looked to for competition in a doubles match, won the prone-standing squabble. Laurence Moore, of Gilman, and Harmon Sheldon of Fair Haven, Vermont, paired up for the 20-shot standing fracas and just got their noses across the line one point ahead of the team of Waite and Tucker. All shooting of the tournament was at 50 feet with metallic sights.—P. H. TEACHOUT, Sec'y.

NEW YORK—Metropolitan Intercollegiate Rifle Tournament. The best that St. Johns University was able to do in its own shoot, the 10th Annual Metropolitan Intercollegiate Championships, was to finish seventh in team honors. City College took first place with a score of 900, nosing out the defending champions, N. Y. U., who scored 878. Fordham took third position by scoring 877 points. The contest, in which 11 teams fired, was staged on the range of the Richmond Hill Rifle Club, March 18th. Individual honors were annexed by Frank Squire of Hofstra, who rang up a score of 190 for the four position course.

NEW YORK—Hearst Matches. The final match in the William Randolph Hearst Civilian Marksmanship Competitions was fired at the range of the Manhattan School of Firearms on Saturday, April 29.

The Roslyn Rifle and Revolver Club team of Roslyn, L. I., won with 925 points. Second place went to the Woodhaven Post 118 American Legion Rifle Club, with a score of 921. Mount Vernon was third, 894, and the Sunrise Target Club of Suffolk County, with only five men on the line, finished with 866.

In the elimination series leading up to this match some 292 matches were fired in the four leagues entered in the competition, the teams competing in the finals having been determined on the results of their league matches with all the other teams of their league on a won and lost basis. Roslyn was the only undefeated team, while Woodhaven had only one defeat in the elimination series.

The course of fire for all matches of the competition was twenty shots, four position, with a time limit of twenty-five minutes. The time limit included sighters, foulers and changing of targets where it was impossible to put up the four targets at one time.

Range facilities on the finals were very good, no complaints being registered, sufficient evidence of excellence, as no rifleman is backward about complaining about range conditions.

The entire series would have been better, in Albany and Syracuse as well as New York, if it had been possible to announce the competi-

tion much earlier so that team schedules could have been made up to allow for these matches. Announcement of the 1940 competition during September will undoubtedly see more than twice the number of teams entered in each area.

PENNSYLVANIA—West Chester Rifle League. Wednesday, April 5, the West Chester Rifle and Pistol Club was host to the Marksmen Club of Wilmington, Delaware, and the Coatesville Rifle Club of Coatesville, Pennsylvania. That evening the two mentioned clubs shot over the West Chester range to decide a tie—an important tie because it decided the winner of the Middle Atlantic Indoor Rifle League for the 1938-39 indoor season. Coatesville was the winner and will receive a trophy to be held for one year, and the members of the team will each receive a silver medal.

The series of matches held in this league have consisted of four position shooting, 30 shots total, 50 feet distance, using official N. R. A. targets. Eight clubs have participated and the cooperation of the National Rifle Association in furnishing booklets, help, etc., has been greatly appreciated by all of the member clubs, most of which are affiliated with the National Rifle Association.

The season ended Saturday, April 15, when a banquet was held. About 125 members and their wives attended and witnessed the presentation of awards and the election of officers for the coming year.—WILLIAM BALL, JR.

KENTUCKY—Daniel Boone Rifle League. One of the fair sex, Mrs. Jane Holcomb, set three dozen or so men back on their heels not long ago when she took first place in two matches of the Daniel Boone indoor rifle shoot. It seems she would have placed high in more matches than that, only there weren't any more. The matches were fired on the difficult 50 Yard Expert target, on which she scored 196, and the regular, and also difficult, 50 meter target, which she punctured for a 199 tally.

The tournament, staged April 22 and 23 at Ashland, Ohio, suffered somewhat from lack of attendance since some of the roads were blocked by spring floods. Nevertheless, what the crowd lacked in numbers was more than compensated for by good spirits. The Daniel Boone leaguers say they have the best range in the state; ten firing points at 50 yards now, with ten at 100 projected for the range before next winter's season gets under way.

MINNESOTA—Championship Small Bore Match. Over 120 shooters got together April 15 and 16 for the annual firing of the Minnesota State Gallery Championship Matches, staged at Minneapolis. Vern Hein of Winona dominated the stage among the old-timers by taking the Veteran's Aggregate with 589, while the Tyro Aggregate went to L. A. Pierson of Wadena, who chalked up a 587 total. To Robert Beer, Jr., went the State Junior Championship. A team from the Minneapolis Rifle Club annexed the Club Team State Championship title, while the Central Minnesota League ten triumphed in the league team event. Altogether, 15 events, most of them divided into tyro and "veteran" classifications, made up the two-day program.

OHIO—Schuetzen Association Postal Matches. A glance at the results of the Schuetzen Association's March postal match results reveals some interesting facts about this game of hind leg shooting. The 50 shot off-hand match went to Stuart Edmonds, of Billings, Montana, who will be remembered as the surprise winner of the Pope 50 meter offhand event at Perry last year. His score, 1,238, was fired on the old German ring target, revived by the Ohio group for their own use. The interesting thing is that Edmonds, as usual, used a perfectly ordinary heavy barrel target rifle, sans palm rest, set-triggers or any of the other gadgets normally considered indispensable adjuncts of the properly attired offhand artist. And second place winner, Arthur Blensinger, Rochester, New York, came through on the same ticket, while all of the Schuetzen Bal-lards and whatnot figured farther down the

list. In all, 63 fired the match, which indicates a pretty healthy old age for this venerable American sport.

OHIO—The 8th Annual Rifle Team Championship Matches, fired at Fort Hayes, Columbus, April 15th and 16th, attracted a record breaking entry of 40 teams, represented by 197 individuals. Last year 135 men were entered. The feature of the match was the winning of the Metallic Sights Prone event by a team of juniors representing the Columbus Rifle and Revolver Club. This team was the first to enter and the first to fire on Saturday; they posted a score of 795 out of a possible 800 and all through Saturday and Sunday none of the senior teams could match or beat this score. Medina Rifle Club No. 1 was second and their No. 2 team was third, tied with scores of 793. The Columbus Juniors were Helen Jenkins, 200; Bill Whipple, Jr., 199; Fred Gierhart, Jr., 198 and DeWitt Erk, 198. This is the first time in the history of the matches that a junior team has won any event.

The Ohio Team Championship event, a three-position match, prone, kneeling and standing, for the National Guard Trophy, was won by Medina Rifle Club with a score of 1144. The League Champions match, composed of the winning team in each of the nine leagues for the Governor's Trophy, was also won by the Medina Rifle Club with a score of 1422. National Cash Register Club was the defending champion in this match, as well as the previous event. The high individual score on the winning team was made by C. W. Hasenau, Cleveland, with a 289.

The Inter-League Match, composed of 10 all-stars from each league, was won by Summit County with a score of 2838. Wilkens of Cleveland and S. Klein, Massillon, were high individuals in this match, both scoring 290. In an added event, an iron sight three-position match, the Dayton Rifle and Pistol Club won with a score of 1094. In the third annual Ohio-California Team match, a telegraphic event, the tie of one match each was broken by Ohio winning

(Continued on page 50)

Coming Events

LOOKING AHEAD

Camp Ritchie.—Announcement of the completion of the "5-year-plan" for the development of Camp Ritchie so far as range facilities go, comes in the advance notices of the East's greatest tournament. Always a most attractive spot, the Camp Ritchie of the 1939 matches promises better accommodations on the grounds; a complete classification system, which, don't forget, will allow every man a chance within his own grade of ability for medals; and the added prestige of definite regional importance and standing. Programs will be available the first of this month.

Camp Grant.—"Mr. Average Shooter" is being definitely invited to these matches this year since they offer the attraction of full classification of all grades of shooters as outlined in the May RIFLEMAN. Medals for all classes should bring out that host of shooters within easy reach of Rockford who in previous years have been unwilling to compete with present or ex-national, state, regional champs, and hot shots in general who congregate at this popular spot. In addition, the clearly defined status of a regional championship this year makes the top prizes worth shooting at.

See page 39 for details of the 1939 Regional Tournament schedule.

ALABAMA

*June 11: Alabama State Pistol Tournament, Ketchikan, Alabama. Sponsored by the Alabama State Rifle Association. For programs write J. P. Prince, 1852 Princeton Avenue, Birmingham, Alabama.

ARIZONA

*June 3-4: Annual Small Bore Rifle Tournament, Prescott, Arizona. Sponsored by the Yavapai Rifle

and Pistol Club. For programs write Harry L. Jacks, Box 546, Prescott, Arizona.

CALIFORNIA

June 4: Alameda Police Pistol Tournament, Oakland, Calif. Sponsored by the Alameda Police Pistol Club. For programs write Captain J. M. Strohm, 2247 Central Ave., Alameda, Calif.

*June 10-11: Annual Western States Small Bore Tournament, Richmond, Calif. Sponsored by the Richmond Rifle & Revolver Club and Richmond Elks Rifle Club. For programs write E. J. Martin, 325 12th Street, Richmond, Calif.

June 16-17-18: California State .30 Caliber Championship, San Luis Obispo, Calif. Sponsored by the California Rifle & Pistol Association. For programs write L. A. Pope, 532 Oakford Drive, Los Angeles, Calif.

June 18: San Francisco Traffic Police Pistol Tournament, Fort Funston, Calif. Sponsored by the San Francisco Police Pistol Club.

June 24-25: 3rd Annual All Night Outdoor Small Bore Rifle Matches, Sacramento, Calif. Sponsored by the Capital City Rifle & Revolver Club. For programs write Ray Murphy, 2753 Riverside Blvd., Sacramento, Calif.

June 24-25: All Night Small Bore Rifle Tournament, Sacramento, Calif.

*June 25: Pistol Tournament, El Centro, Calif. Sponsored by the Imperial Peace Officers Association. For programs write N. R. Adair, Yuma, Ariz.

*July 9: Northern California Small Bore Championship, Richmond, Calif. Sponsored by the Bay District Rifle League. For programs write L. Colburn, 2349 Leavenworth St., San Francisco, Calif.

July 14-15-16: California State Pistol Matches to be held in conjunction with the Regional Pistol Matches, Fort Funston, Calif. For programs write L. A. Pope, 532 Oakford Drive, Los Angeles, Calif.

The Small Bore Tournament to be conducted on July 30th by the San Francisco Rifle Association in Richmond, California, has been cancelled.

*August 27: San Francisco Rifle Association Tournament, Richmond, Calif. Sponsored by the San Francisco Rifle Association. For programs write L. Colburn, 2349 Leavenworth Street, San Francisco, Calif.

*September 24: San Francisco Rifle Association Tournament, Richmond, Calif. Sponsored by the San Francisco Rifle Association. For programs write L. Colburn, 2349 Leavenworth Street, San Francisco, Calif.

*September 24: Pistol Tournament, El Centro, Calif. Sponsored by the Imperial Yuma Peace Officers Association. For programs write Norman Adair, Yuma, Ariz.

CONNECTICUT

June 11: First Annual Small Bore Tournament, Bristol, Conn. Sponsored by the Bell City Rifle Club. For programs write Guy Kirkby, 16 Main Street, Pequabuck, Conn.

*June 16-17-18: Connecticut Annual Small Bore Tournament, Meriden, Conn. Sponsored by the Connecticut State Rifle and Revolver Association, Inc. For programs write J. Russell Lent, Middlefield, Conn.

DELAWARE

*June 25: Marksman's Club June Rifle Tournament, Wilmington, Del. Sponsored by the Marksman's Club. For programs write F. F. Palmer, Jr., 604 W. 10th Street, Wilmington, Del.

*July 22-23: Delaware Tidewater Small Bore Championship, Wilmington, Del. Sponsored by the Marksman's Club. For programs write F. C. Wince, P. O. Box 302, Wilmington, Del.

DISTRICT OF COLUMBIA

June 4: National Capital Rifle Club Team Match, Washington, D. C. Sponsored by the National Capital Rifle Club. For programs write L. L. McDonie, 421½ 6th Street, S. E., Washington, D. C.

ILLINOIS

*June 4: Second Annual Piassa Rifle Club Match, Alton, Ill. Sponsored by the Piassa Rifle Club. For programs write L. G. McAdam, 3316 Belle St., Alton, Ill.

June 4: Pistol Match, Chicago, Ill. Sponsored by the Hyde Park "V" Rifle and Pistol Club. For programs write Dr. Robert E. Englert, 1305 East 63rd Street, Chicago, Ill.

*June 9-10-11: U. S. Grant Memorial Tournament, Rockford, Ill. Sponsored by the Illinois State

Rifle Association. For programs write Michael Gawron, 3434 N. Avers Avenue, Chicago, Ill.

June 18: Pistol Match, Hinsdale, Ill. Sponsored by the Arrowhead Gun Club. For programs write F. J. Gerlich, Riverside, Ill.

*June 18: Illini Spring Small Bore Tournament, Champaign, Ill. Sponsored by the Illini Gun Club. For programs write P. E. Hotchkiss, 905 W. Church Street, Champaign, Ill.

June 25: Pistol Match sponsored by the Arrowhead Rod & Gun Club. For programs write Frank Gerlich, 386 Blackhawk Road, Riverside, Ill.

*June 25: Fort Sheridan Small Bore Tournament, Fort Sheridan, Ill. Sponsored by the Illinois State Rifle Association. For programs write M. Gawron, 3434 N. Avers Ave., Chicago, Ill.

*July 8-9: Blackhawk Open Rifle Tournament, La Grange, Illinois. Sponsored by the Blackhawk Rifle Club. For programs write Edw. J. Rock, Jr., 1162 S. Highland Ave., Oak Park, Illinois.

*July 11: Illini Pistol and Revolver Tournament, Champaign, Illinois. Sponsored by the Illini Gun Club, Inc. For programs write P. E. Hotchkiss, 905 W. Church St., Champaign, Ill.

IOWA

*June 4: 3rd Annual Eastern Iowa Small Bore Tournament, Muscatine, Iowa. Sponsored by the Muscatine Rifle Club. For programs write Dr. J. G. Johnston, 219 W. 7th Street, Muscatine, Iowa.

*June 17-18: Iowa State Small Bore Rifle Tournament, Des Moines, Iowa. Sponsored by the Iowa State Rifle Association. For programs write G. G. Cooper, 816 Telephone Building, Des Moines, Iowa.

KANSAS

June 4-5: Kansas State Civilian Tryouts, Ft. Riley, Kansas. For programs write W. M. Ruddle, c/o American National Bank, Hutchinson, Kansas.

June 11: The Kansas State Championship Pistol Matches, Topeka, Kans. Sponsored by the Topeka Pistol Club. For programs write J. E. Collingwood, 600 Kansas Avenue, Topeka, Kans.

*July 22-23: Kansas State Small Bore Rifle Championship, Topeka, Kans. Sponsored by the Topeka Rifle Club. For programs write Raymond Trapp, 124 The Drive, Topeka, Kans.

KENTUCKY

July 2: Kentucky Civilian Rifle Team Tryout, Fort Knox, Ky. For programs write Harry J. Hopkins, 1506 South Fourth, Louisville, Ky.

MAINE

*June 24-25: Maine State Small Bore Tournament Sponsored by the Maine State Rifle and Pistol Club For programs write Kent N. Pierce, Augusta, Maine

*July 23: Maine State Pistol Tournament, Auburn, Maine. Sponsored by the Maine State Rifle and Pistol Association. For programs write John M. Lane, 131 Bishop Street, Portland, Maine.

MARYLAND

*June 30 to July 4: Eastern Small Bore Rifle and Pistol Matches, Camp Ritchie, Maryland. Sponsored by the Eastern Small Bore Rifle Association. For programs write Tom Davis, 60 Warren Street, New York City.

MASSACHUSETTS

June 11: 1st Annual Small Bore Tournament, New Bedford, Mass. Sponsored by the New Bedford Rifle & Pistol Club. For programs write E. M. Willey, 566 Pleasant Street, New Bedford, Mass.

July 4: Annual 4th of July Shoot, Concord, Mass Sponsored by the Middlesex Rifle Club, Inc. For programs write D. J. Hardesty, 12 De Mars, St. Maynard, Mass.

MICHIGAN

*June 11: Jackson Dedicatory Pistol Tournament, Jackson, Mich. Sponsored by the Jackson Police Dept. For programs write H. C. Hertz, Box 275, Jackson, Michigan.

*June 17-18: Michigan State Small Bore Tournament, Detroit, Mich. Sponsored by the Michigan State Rifle and Pistol Association. For programs write Harold Headley, 71 Lakeview Avenue, Battle Creek, Michigan.

*June 24-25: Michigan State Pistol Tournament, Detroit, Mich. Sponsored by the Michigan State Rifle and Pistol Association. For programs write Harold Headley, 71 Lakeview Avenue, Battle Creek, Mich.

*July 15-16: Eastern Michigan Small Bore Tournament, Detroit, Michigan. Sponsored by Eastern Michigan Rifle & Pistol Association. For programs write G. F. Petersimes, 342 Phillip Ave., Detroit, Michigan.

MINNESOTA

June 25: 3rd Annual Lake Region Small Bore Tournament, Fergus Falls, Minn. Sponsored by the Fergus Falls Rifle & Pistol Club, Inc. For programs write A. N. Barnard, Fergus Falls, Minn.

June 10-11: Minneapolis Pistol Club Spring Tournament, Minneapolis, Minn. Sponsored by the Minneapolis Pistol Club. For programs write Gilbert Lee, 4333 Washburn Avenue, N. Minneapolis, Minn.

*June 11: Red River Valley League Second Annual Rifle Tournament, Strandquist, Minn. Sponsored by the Red River Valley League. For programs write Ed. O. Stennes, Strandquist, Minn.

*July 22-23: Minnesota Arrowhead Small Bore Rifle Tournament, Virginia, Minn. Sponsored by the Virginia Rifle Club. For programs write Andrew Bradish, 327 9th Street, S. Virginia, Minn.

MISSOURI

June 24-25: Western Missouri Small Bore Championships, Pleasant Hill, Mo. Sponsored by The Pleasant Hill Rifle and Pistol Club. For programs write Gilbert Burr, Pleasant Hill, Mo.

MONTANA

*June 16-17-18: Northwestern Rifle Association 14th Annual Small Bore and Pistol Competition, "The Little Camp Perry of the West." For programs write T. A. Krall, Box 91, Milltown, Mont.

June 16-17-18: 14th Annual Northwestern Matches, Missoula, Mont. Sponsored by the Northwestern Rifle Association. For programs write T. A. Krall, Milltown, Mont.

July 7-8-9: The 1939 Annual Montana Rifle Association Matches and Camp Perry Elimination Matches, Sponsored by the Butte Gun Club. For programs write Harlow Pease, 411 Silver Bow Block, Butte, Mont.

NEBRASKA

*July 29-30: Corn States Pistol Tournament, Omaha, Nebr. Sponsored by the 360 Rifle and Pistol Club. For programs write J. B. Crawford, 417 S. 13th Street, Omaha, Nebr.

NEW YORK

*June 10-11: New York State Pistol and Revolver Championship, Syracuse, N. Y. Sponsored by the Reserve Officers Association. For programs write Jacob H. Bloss, 514 Scott Ave., Syracuse, N. Y.

*June 10-11: Long Island Rifle and Pistol Association Spring Tournament, Woodbury, L. I. Sponsored by the Long Island Rifle and Pistol Association. For programs write C. Moore, 70 Verben Ave., Floral Park, L. I., N. Y.

June 11: 3rd Annual Small Bore Tournament, Nassau, N. Y. Sponsored by the Forbes Rifle and Pistol Club, Inc. For programs write Henry Ristau, 38 Walker St., Rensselaer, N. Y.

*June 25: Moreau Rod and Gun Club Small Bore Rifle Tournament, Glen Falls, N. Y. Sponsored by the Moreau Rod & Gun Club. For programs write Paul H. Colburn, P. O. Box 62, Glen Falls, N. Y.

*July 15-16: First Annual Registered Outdoor Pistol Matches, Roslyn, N. Y. Sponsored by the Roslyn Rifle and Revolver Club. For programs write S. E. Ellis, 26 Kennworth Rd., Port Washington, L. I., N. Y.

NORTH CAROLINA

July 15-16: 5th Annual North Carolina State .30 Caliber Championships, Fort Bragg, N. C. Facilities courtesy of Brig. Gen. Wm. Bryden, Commanding. For programs write Capt. H. M. Rooney, Linville, N. C.

OHIO

*June 3-4: 5th Annual Outdoor Small Bore Tournament, Cleveland, Ohio. Sponsored by the German Rifle Club. For programs write Joseph Kasper, 2116 W. 101 Street, Cleveland, Ohio.

June 18: Ohio State Pistol Matches, Dayton, Ohio. Sponsored by the Ohio State Rifle and Pistol Association.

For programs write Miles E. Goll, 119 Forest Avenue, Dayton, Ohio.

July 2: Ohio State .30 Caliber Match and Civilian Team Tryouts, Camp Perry, Ohio. For programs write Miles E. Goll, 119 Forest Ave., Dayton, Ohio.

*July 2-3-4: Tusco Independence Day Small Bore Tournament, New Philadelphia, Ohio. Sponsored by the Tusco Rifle Club. For programs write Warren J. Tonkin, 933 W. High Ave., New Philadelphia, Ohio.

July 8-9: Ohio State Individual Rifle Matches to be held on the new Ohio Rifle and Pistol Association range near Mt. Gilrod, Ohio. Sponsored by the Ohio State Rifle and Pistol Association. For programs write Miles E. Goll, 119 Forest Ave., Dayton, Ohio.

*July 28-29-30: Zeppelin Open Small Bore and Pistol Tournament, Akron, Ohio. Sponsored by the Zeppelin Rifle Club. For programs write Howard Geer, 640 Sackett Street, Cuyahoga Falls, Ohio.

*August 15-16-17: 3rd Annual All American Open Pistol Tournament, Cincinnati, Ohio. Sponsored by the Indian Hill Rangers. For programs write Captain H. E. Wilson, R. F. D. No. 1, Cincinnati, Ohio.

*August 20 to September 9: National Matches, Camp Perry, Ohio. Programs will be available about July 15th.

OKLAHOMA

*June 10-11: Magic Empire Small Bore Rifle Tournament, Tulsa, Oklahoma. Sponsored by the Tulsa Rifle Club and Veterans of Foreign Wars Rifle Club. For programs write Mr. C. N. Wynkoop, Box 1466, Tulsa, Okla.

June 24-25: 14th Annual High Power Rifle Tournament, Claremore, Oklahoma. Sponsored by the Oklahoma Rifle Association. For programs write Helen H. Croom, Okmulgee, Oklahoma.

OREGON

*June 3-4: Pendleton Small Bore Tournament, Pendleton, Oregon. For programs write Bert Peterson, Box 742, Pendleton, Oregon.

*June 10-11: Oregon Small Bore Tournament, Portland, Oregon. Sponsored by the Oregon State Rifle and Pistol Club. For programs write Leslie T. St. Clair, Gresham, Oregon.

PENNSYLVANIA

June 4: Small Bore Tournament, Altoona, Pennsylvania. Sponsored by the Altoona Rifle Club. For programs write T. G. Crain, 1619 First Avenue, Altoona, Pennsylvania.

June 11: 3rd Annual Lehigh Valley Spring Small Bore Championships, Allentown, Pennsylvania. Sponsored by the Bear Rock Rifle Teams. For programs write W. F. Gutekunst, 220 N. 9th St., Allentown, Pennsylvania.

*June 10-11: Mid-Season Small Bore Rifle Tournament, Erie, Pennsylvania. Sponsored by the Lawrence Park Rifle Club. For programs write L. H. Smith, 1014 Newton Avenue, Lawrence Park, Erie, Pennsylvania.

June 10-11: 2nd Annual Small Bore Rifle Tournament, Philadelphia, Penna. Sponsored by the Philadelphia Civilian Target Club. For programs write J. F. Busch, 915 Scattergood St., Philadelphia, Pa.

June 11: Small Bore Shoot, Pittston, Pennsylvania. Sponsored by the Stanton Pistol & Rifle Club. For programs write D. J. Bailey, 713 Montgomery Avenue, West Pittston, Pa.

*June 25: Philadelphia Marksman's League Pistol Tournament, Philadelphia, Penna. Sponsored by the Philadelphia Marksman's League. For programs write R. George Miller, 2008 E. Clearfield St., Philadelphia, Pa.

*July 8-9: 8th Annual Walnut Creek Rifle Tournament, Erie, Pennsylvania. Sponsored by the Walnut Creek Rifle Club. For programs write George R. Loder, 1014 Cherry St., Erie, Pa.

*July 15-16: Second Annual Outdoor Small Bore Tournament, Vandergrift, Pennsylvania. Sponsored by the Vandergrift-Carnegie-Illinois Rifle Club. For programs write Fred H. Coughenour, 215 Bryant St., Vandergrift, Pa.

RHODE ISLAND

*June 3-4: Rhode Island State Small Bore Tournament, Rumford, Rhode Island. Sponsored by the Rhode Island Rifleman. For programs write Waldo D. Rouviere, 106 Messer St., Providence, R. I.

TENNESSEE

*July 23: Tennessee Pistol and Revolver Championship, Nashville, Tenn. Sponsored by the Nashville Pistol & Revolver Club. For programs write Fletcher Hoover, 2207 Westwood Ave., Nashville, Tenn.

TEXAS

June 12-13-14: City Marshals and Chiefs of Police Union of Texas Pistol Matches, Dallas, Texas. Sponsored by the City Marshals and Chiefs of Police Union of Texas. For programs write G. H. Smith, P. O. Box 299, Dallas, Texas.

*June 9-10-11: Texas State Pistol Tournament, Dallas, Texas. Sponsored by the Texas State Rifle Assn. For programs write John F. Callan, 403 E. 30th St., Austin, Texas.

June 25: First Annual Small Bore Rifle Tournament, Brownwood, Texas. Brownwood Rifle and Pistol Club. For programs write I. N. Franklin, 1205 Vine St., Brownwood, Texas.

VERMONT

*June 17-18: Vermont State Small Bore Rifle Tournament, Northfield, Vermont. Sponsored by the Vermont State Rifle and Pistol Assn. For programs write Louis C. Taft, 41 Fortney Place, Barre, Vermont.

*July 16: Vermont Registered Pistol Tournament, Fort Ethan Allen, Vermont. Sponsored by the Vermont Rifle and Pistol Assn. For programs write D. R. Donahue, 34 St. Paul St., Montpelier, Vermont.

VIRGINIA

*June 17-18: 5th Annual Hampton Small Bore Tournament, Hampton, Virginia. Sponsored by the Hampton Rifle Club and Virginia State Association. For programs write B. W. Corson, 3417 Chesapeake Ave., Hampton, Virginia.

WEST VIRGINIA

*July 22-23: 3rd Annual Mountain State Rifle and Pistol Tournament, Fairmont, W. Va. Sponsored by the Fairmont Gun Club. For programs write J. J. Woodward, Box 572, Morgantown, W. Va.

WISCONSIN

*June 4: Annual Spring Small Bore Tournament, County Line Range, Wis. Sponsored by the County Line Rifle and Pistol League. For programs write Oliver Moody, 5527 N. 35th St., Milwaukee, Wis.

June 18: 4th Annual Tri-State .30 Caliber Matches, La Crosse, Wis. Sponsored by the American Legion Rifle Club Post No. 52. For programs write Ernest F. Wojahn, 901 South 6th St., La Crosse, Wis.

June 18: Small Bore Match, Fond du Lac, Wisconsin. Sponsored by the Fond du Lac Rifle and Pistol Club, Inc. For programs write C. F. Hill, 106 Hamilton Place, Fond du Lac, Wis.

June 25: Southeastern Regional High Power Matches, County Line Range, Wis. Sponsored by the Wisconsin Rifle Association. For programs write Col. J. J. Ring, 1842 North 83rd St., Wauwatosa, Wis.

*August 12-13: Annual Class "B" Small Bore Tournament, County Line Range, Wis. Sponsored by the County Line Range Rifle and Pistol League, Inc. For programs write Oliver Moody, 5527 North 35th St., Milwaukee, Wis.

*September 24: Annual Class "C" Fall S. B. Tournament, County Line Range, Wis. Sponsored by the County Line Range Rifle & Pistol League, Inc. For programs write Oliver Moody, 5527 North 35th St., Milwaukee, Wis.

WYOMING

*July 1 to 4: Fort Francis E. Warren Rifle and Pistol Tournament, Fort Francis E. Warren, Wyoming. For programs write Lt. J. M. Underwood, Fort Francis E. Warren, Wyoming.

* Indicates Registered Tournaments.

STOLEN GUNS

Bausch & Lomb Crossman Model spotting scope, No. 234437; two Lyman Super-Target-spots, 10X, Nos. 386 and 920; Unertl tube, Fecker mounts, Parker-Hale six-hole eyepiece, no number. G. G. Cooper, 816 Telephone Bldg., Des Moines, Iowa.

DOPE BAG . . .

Conducted by F. C. NESS

Prismo Targets at Night. Before me as I write lies the first Prismo Target used on any 100-yard range. It is a small-bore possible fired by L. M. Temple at 10:45 P. M. on March 22, 1939. Just 15 minutes earlier Lem had fired a scratch possible at 50 yards on the first Prismo Target ever used. I also have this one, and note that both are signed by witness, Edwin R. Gill, Jr., of Prismo Products, Inc., Graybar Bldg., New York City. He is the expert on light chiefly responsible for the Prismo Target which Lem Temple helped develop. The U. S. patent number is 1902440.

In these two targets it is easy to score the bullet holes and also to gauge close shots, although they were fired in a mild storm of wind and rain. For illuminating these targets Lem used solely a five-cell flashlight, standing beside him on the outdoor firing line. Illumination is enhanced by the Prismo coating of silicon crystals on the surface of the bull which act in unison as a myriad tiny lenses to reflect the light back into the shooter's scope.

Because black absorbs light rays the bull is printed or lithographed in some light-reflecting color and then it is processed to bounce back the light rays which reach it. This makes it possible to very conveniently, cheaply and superficially illuminate the face of the target with any artificial light, such as a pocket lamp, car headlights, spotlight, etc., for night shooting. The ones we tried had white bulls and red bull's-eyes for contrast. They were pretty things, suggestive of frosted Christmas cards, and possessing considerable spectacular appeal for spectators as well as for shooters. I have several of these, bearing possible scores and one-hole groups.

It is the same red-white-color type we used last Friday night at the Camp Simms range of the National Capital Rifle Club, when Lem and Mr. Gill came down for a demonstration. This particular lot of Prismo Targets was made on thin stock and bullets sometimes tore uneven holes in this paper, made somewhat limp by the damp marsh air after 10:00 P. M. Also the Prismo binder was apparently not as tough nor as heavy as that employed in earlier samples of these targets which we have seen. Outside of these two easily corrected defects everything worked to perfection, both as to spotting and as to aiming with telescope sights.

We could distinguish the X-ring, inside the red 10-ring, in the fields of our B. & L. prismatic scopes, and we could distinctly see the fine crosshairs in the sighting scopes against the processed face of the target at both 50 yards and 100 yards while using several kinds of illumination, behind as well as before the firing line. Walter Oakley and L. L. McDonie did the shooting. The "Jedge" had a couple of fine one-hole groups at both ranges, but he also lost one in the white when, he said, his eyes grew momentarily tired after a long siege while Mac, a la plumber, went home for his scope.

To indicate that sighting conditions on the Prismo Target were practical and about normal that night, Walter had two 9's and a 5-shot possible at 100 yards and a possible at 50 yards. Mac had a possible at 50 yards and could have had one at 100 yards had we not miscounted and led him to stop firing after 9 shots in the 10-ring. The shooters and the select crowd of invited spectators seemed to think the Prismo Targets were quite practical and had great possibilities for official outdoor matches at night. For official scoring purposes color lithographing on official tag stock will be necessary. For metallic sights the entire bull will have to be solid red or a solid green with standard white scoring rings. Such a solid-color target will be well adapted for scope use also.

At 100 yards we varied the lighting considerably, but each way seemed practical. The first frame, fired by Oakley, was illuminated by

a five-cell flashlight 50 yards in front of and ten yards to the left of the firing point. The next frame merely had a pocket flashlight fifty feet away on the ground. Walter shot his 5-shot possible on this one. The third frame was illuminated by the headlights of Moulton's car behind the firing line. The 50-yard targets were lighted by the headlights of Barr's car even with the firing line.

We believed these Prismo Targets would be very practical for indoor ranges and for pistol shooting. To try it I borrowed Major Gray's pocket automatic and went up to fifty feet because the two-inch red 10-ring was about right for that pistol range. It was a good test because the typical C.F. pocket pistol had small and very difficult sights. The target was illuminated by a pocket lamp at the firing line, but I could aim very definitely with those poor pocket sights silhouetted against the reflecting red bull. To prove it, I was induced to fire a shot with the strange gun. Fortunately the zero and hold agreed and I got an inside ten. Of course I did not beg my luck further.

An odd thing about viewing these Prismo Targets is the contrast between the processed bull and the rest of the white card, which latter appears to be a dirty grey in the scope. Also, when a .22 bullet hits, it knocks off some of the crystals surrounding the bullet hole and this encircling clear area looks black from the firing line. The astonishing result is to make the .22 hole seem about three times its normal size, or bigger than a .45.

The Prismo Targets have also been privately tried in the Chicago area, by the Wilmo Club in the vicinity of Cincinnati and by the Outer's Club of New York. It is the present purpose of Messrs. Temple and Gill to have a quantity of official-type targets made up for a final demonstration or an experimental match in the hope of winning, ultimately, its adoption by the National Rifle Association. In view of the records, which show a much greater participation in gallery or indoor matches which are fired at night, I personally think this Prismo Target has tremendous possibilities.

Magnum Handloads. Noting our possession of a Niedner bull gun in .300 Magnum caliber and our comments on Magnum and maximum cartridges in the April Dope Bag, Frank Mossteller of Kalamazoo, Michigan, came through handsomely with some suggested loads for the three American Magnums in .275, .300 and .375 calibers. His letter, in part, follows:

"The April issue of the AMERICAN RIFLEMAN reveals I broke into print with handloads for the .375 H. & H. Magnum. These were adopted three years ago; in the meantime 4064 has replaced 1512. Other charges have varied but slightly. So here they are up to date (No. 70 F.A. primers used):

	.375 H. & H. MAGNUM		
	Powder	235-gr.	270-gr.
No. 4064		70.0 grs.	67.5 grs.
HiVel No. 2		65.0 "	63.5 "
Lightning		57 "	56 "

"A range may not be convenient for many members, but if they can zero the 270-grain at 200 yards, using any one of these powders, the 235-grain bullet will land 4 inches high and the 300-grain, 8 inches low with the same sight setting. Or, by setting the scope back two minutes from "0", the 235-grain will be on aim. Set it forward of "0" three minutes and the 300-grain will be on at 200 yards.

"Occasionally I have noticed statements that this caliber did not have the degree of accuracy expected of it. I am inclined to think the trouble is with the shooter being sensitive to recoil, for I have found the accuracy excellent under many weather conditions and at various altitudes.

"My handloads for the .300 H. & H. Magnum may be of interest too, as loading information for this caliber has been rather meager. My barrel is a medium-heavy Niedner, so quite likely yours is as near the same as two barrels can perform and the charges should interchange very well. These too are with No. 70 F.A. primers. These give good accuracy and are plenty stiff and may prove too heavy in a lighter barrel.

	.300 H. & H. MAGNUM		
Bullet	4064	HiVel-2	Li'ting
173 M1	62 grs.		
180 OP W'n	61 "	58 grs.	55 grs.
200 W. T. & C.	60 "	56 "	52 "
220 SP W'n	59 "	55 "	51 "

"There is some effort being displayed to revive the .276 Dubiel. The .275 H. & H. Magnum is a commercial cartridge made by Western, convenient to purchase, and I like it better, though that can start an argument. But it must be admitted a lot of successful cartridges have abrupt shoulders. Niedner is tooled to chamber for it, as they made me one. This cartridge handles all the available 7-mm. bullets and the new W. T. & C. W. 160-grain Spitzer O.P. If built on a Magnum Mauser, Winchester or Enfield action with a long magazine-box, the W. T. & C. W. 180-grain Spitzer O.P. can be used; otherwise it would have to be seated mighty deep to fit the box of a standard action. The handloads with No. 70 F.A. primers are:

	.275 H. & H. MAGNUM	
Bullet	No. 4064	
123-gr. Spitzer OP	56.0 grs.	
139 " 7-mm.	55.0 "	
150 " "	54.0 "	
160 " Spitzer OP	54.0 "	
175 " SP B.T.	52.0 "	

"In the winter time a couple more grains can be used, but with a hot barrel or in the summer time pressures build up in a hurry. This is a delightful gun to shoot, as the recoil is light and these long bullets do business way out there."—FRANK MOSSTELLER.

The .280 Dubiel Magnum caliber seems to be consistently well-liked by those relatively few shooters who have rifles for same. They claim much flatter trajectory, less wind deflection over long ranges and at least equal accuracy as compared with the .300 Magnum. L. G. Humphrey of San Angelo, Texas, has a fine rifle in both these long-range calibers, but he affirms he would give up the .300 before parting with the .280. He finds the latter is more accurate and has a flatter trajectory, by 19 inches over 600 yards with special bullets as described recently (April, page 46) in the Dope Bag.

Mr. Humphrey had a message in March from the Western Tool & Copper Works, saying they would continue to make small lots of .280 caliber bullets in 150-grain and 180-grain weights as long as a reasonable number of .280 rifles continued in use. They have merely ceased to stock these bullets, but they have definitely dropped only the 115-grain bullet.

The expert maker of bullets for the O.K.H. .280 Duplex, who still wishes to remain anonymous, says the .280 Dubiel will be the best long-range gun in the world if properly developed. He altered the M1 Service bullet for it and in a .280 Dubiel bull-gun (30-inch barrel with 9-inch twist) this 170-grain boat-tail grouped into 2½ x 4 inches at 600 yards, and required an elevation of only 2½ minutes of angle. This load regularly keeps them inside of 6 inches at 600 yards. It shoots flatter and bucks the wind better than the factory match load in the .300 Magnum. It has been rumored that one of our loading companies is developing a match load for the .280 Dubiel Magnum, which will serve to revive and boost this efficient caliber, providing proper bullets are used.

Ernst-August vom Hofe, the "Hof" part of the (Hof-Mann 7-mm. Super Express Cartridge), writes in from Berlin with some additional dope for those readers who read our comments in the April Dope Bag. He corrects Mr. Koenig's dope to the effect that he worked with Mr. Brenneke for a couple of years before starting his own company in 1930 with Mr. Schienmann, a business partner whose name filled the "Mann" portion of the cartridge title, above. Since 1936 he has been alone in the same business and the same cartridge is now called the "vom Hofe 7-mm. Super-Express".

This 7 x 73-mm. has a belted case 2.874 inches long, and it resembles the .280 Dubiel Magnum more closely than the .280 Ross, but it is somewhat bigger in the body. The bullet is the same (170-grain, boat-tail, paraboloidal-headed, soft point) but the powder charge is 75 grains of a special pure-nitrocellulose leaf powder made by the Rottweil Company. The mean pressure is about 57,000 pounds. The heavy special rifle, with 27½-inch barrel, used for testing does less than minute-of-angle groups, or around 2.5 inches at 300 meters. The guarantee of accuracy with sporting rifles (8½ to 9½ pounds) is 5-shot groups of 1.5 inches, center to center, at 100 meters. It has been used with great success for killing soft-skinned big game at long range in Africa, India and Canada.

Herr Hofe adds some dope on the Brenneke 8 x 64.5-mm., which uses Rottweil N.C. leaf powder to the tune of 65 and 70 grains according to bullet weight, there being a 185-grain at 3050 f.-s. m.v. and a 225-grain at 2750 f.-s. m.v. Pressures run about 58,000 pounds. Velocities given are for a 28-inch barrel. Official accuracy not yet available, but tests with the 225-grain load have consistently given groups of 1.5 to 2.0 inches at 100 meters.

In Germany, he adds, the 8-mm. still occupies the throne of popularity as the old "Thutty Thutty" does here; instead of our lever-action, the favorite gun there being the 3-barrel "Drilling", the rifle barrel beneath the smooth bores being chambered most popularly for the 8 x 57 rimmed cartridge, on the order of our 220-grain .30-40 Krag of old Service type. For big game in the tropics the 9.3 x 62 with 285-grain soft-point bullet still prevails. For small European antelope game (30-pound-Roeback) the .22 Savage H.P. cartridge was popularly used in combination guns.

AMERICAN-RIFLEMAN-reader Hofe thinks we should take a leaf from the dope book of Charles Newton and improve our .220 Swift by developing it for a 90-grain bullet. He makes a 5.6-mm. Super Express with a 77-grain soft-point bullet over an inch long and sharply pointed. This is loaded in bottle-neck cases of both rimmed and rimless types, respectively, for both types of rifles. The load is 54 grains of Rottweil N.C. leaf and the muzzle velocity is 3707 f.-s., with 2808 f.-s. and 1353 ft.-lbs. remaining at 300 yards. The muzzle energy figure is 2351 ft.-lbs. The chamber pressure is 57,000 pounds. The bullet is .228 inch.

Blind Test. Back about Thanksgiving time, Norman Albree conducted a .22 L.R. accuracy test in a unique way. He used a sandbag in front and his shoulder in back but he had an assistant load the gun alternately with different brands of ammunition and another helper to change targets for each shot, so he would have, at the finish, a group with each different load on its own target.

The five targets and their respective .22 loads are indicated merely by letters. Roughly the groups and scores, now taken by me, directly from the targets, are as follows: "A", 7/8 inch and 42; "B", ¼ inch and 50; "C", 11/16 inch and 48; "D", 3/16 inch and 50; "E", 7/16 inch and 50.

These results were substantiated by a later test under similar conditions. An indoor range of 60 feet was used with artificial light. Aim was taken on the 50-foot single-bull target with a low-power cross-hair scope sight. The purpose of the test was to determine the best load for the individual rifle. It is obvious that loads "B" and "D" were outstandingly best at this short range. They were identical loads of the

same brand. Also, loads "A" and "C" were poor for this particular arm and load "E" was only fair.

The purpose of Albree's blind test was to insure strict impartiality in the comparison test. The lesson taught by his results is the importance of carefully selecting ammunition by trial for the individual .22 rim fire rifle. All loads were popular smokeless brands. "A", "C" and "D" were match loads. "A" and "E" were of the same brand. Even so there was a definite difference in performance on the short-range target from the same rifle. "A" or "C" might prove best in your rifle.

New .45 Pistol Dope. Learning that the War Department had been making some new tests and calculations centered about the .45 A.C.P. we applied to the Ordnance Department and obtained the following interesting tabulation:

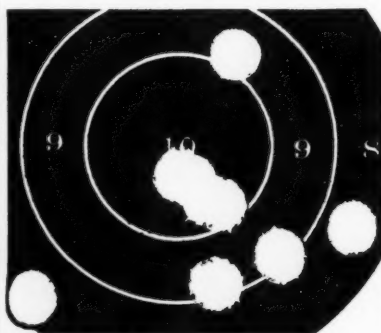
BALLISTIC DATA FOR CAL. .45 PISTOL

Firing Cartridge Ball Cal. .45 M-1911

Bullet weight, 230 grs.

Inst. Vel. at 25 ft., 800 f.-s.
(Elevation, 0°)

Range (Yards)	Time of Flight (Seconds)	Drop (Inches)	Left Drift (Inches)
5	.018	0.1	0.0
10	.037	0.3	0.1
15	.056	0.6	0.1
20	.075	1.1	0.2
25	.094	1.7	0.2
30	.113	2.4	0.3
35	.132	3.3	0.3
40	.151	4.4	0.4
45	.170	5.6	0.5
50	.190	6.9	0.6
55	.209	8.3	0.7
60	.229	9.9	0.8
65	.248	12.0	0.9
70	.268	14.0	1.0
75	.288	16.0	1.1
80	.308	18.0	1.3
85	.328	20.0	1.5
90	.348	23.0	1.7
95	.368	25.0	1.8
100	.388	28.0	2.0



The .32-20 score

.32-20 H. G. Loads. Because .32 W.C.F. ammunition is loaded for rifles it does not perform well in the revolver. One of the best revolver loads in this caliber was a low-pressure lead-bullet cartridge by Winchester. It had a 100-grain lead bullet with duPont No. 50 smokeless powder behind it, and this combination gave fair accuracy in the revolver. Now, I understand, the W.R.A. charge is about 6.3 grains of duPont No. 93 smokeless behind the lead bullet. No. 50 and No. 93 are not canister powders and therefore not available to reloaders.

About 15 years ago I played with revolver handloads in this caliber quite extensively over a 3-year period, and the best accuracy was obtained with 2.3 grains of Hercules Bullseye behind the 100-grain wadcutter bullet (B. & M. No. 313100) which I designed for Belding & Mull. I had just as good results with the

conical-pointed, 100-grain, lead bullet when I reversed it and seated it nose first on top of this same charge. My field load was 7.0 grains of duPont Rifle No. 1 or the stiffer load of 8.0 grains No. 80 powder. I used the Bisley Model Colt and the S. & W. K-Model target revolvers in this testing, which eliminated, one by one, such propellants as Pistol No. 3, Pistol No. 5, Unique and also shotgun smokeless.

One fault of the .32-20 caliber was the weakness of its folded-head cases which often broke off at the head and at best never lasted long. I overcame this trouble, when developing extreme loads, by full-length resizing .32 Winchester Self-loading cases, which are semi-rimmed, and using them in my .32-20 revolvers. Another fault was the excessive muzzle blast and the escape of gases between cylinder and barrel, which makes its report louder than that of the .357 Magnum when heavy .32-20 loads are fired. I never succeeded in modifying that very objectionable noisiness. This is now being almost completely eliminated with duplex loading.

Now comes Gordon Boser and his Single-Action Colt in this caliber, with evidence that No. 5 powder worked best for him in full-power loads. He obtained a lot of Remington solid-head cases for his experiments, perhaps from R. A. Hi-Speed ammunition. He found such propellants as Hercules No. 2400 (up to 13.0 grains) and Hercules Unique (6.3 grains) did not burn cleanly even at high pressures and gave mediocre accuracy, behind the 76-to-80-grain, Hi-Speed, O.P. bullet. Behind the 100-grain lead bullet 3.7 grains of Bullseye was accurate, but had too much "snap" to warrant an increase. Pistol Powder No. 5 was worked up from 6.0 grains to 7.0 grains and gave great punch, with less apparent pressure, and better accuracy. He judges pressures to be between 15,000 and 20,000 pounds, and no case-sizing has been required in firing 250 of these loads.

Boser opens the nose of the 80-grain bullet to a ⅜-inch cavity, which makes it weigh 76 grains. He finds 7.0 grains of No. 5 powder behind this bullet as accurate as any of his .30-Luger loads and definitely more destructive on flesh. It blows rabbits apart, and it penetrated the neck (through the spine) of the only beef on which it was tried. The only fault he found was the terrific blast, which precludes its being fired indoors, and causes a mild headache after a 20-shot string outdoors.

Boser's other load of No. 5 powder is 6.0 grains behind a 100-grain lead bullet. This easily penetrates a ⅜-inch steel plate which his .30-Luger just fails to penetrate. This same load deeply dents a ⅜-inch plate which the Peters .357 Magnum penetrates easily from a ⅜-inch revolver of that caliber. Boser also makes this lead bullet hollow-point with a ⅜-inch cavity, ⅜-inch deep, which reduces its weight to 87 grains. Behind this hollow-point bullet he uses 6.3 grains of No. 5 powder as his best charge.

I have several recovered bullets from Mr. Boser which had been fired in various substances. The first one is the .32-20, 80-grain Hi-Speed, made hollow-point to weigh 76 grains as previously described. It was fired in a ⅜-inch S. A. Colt with the charge of 7.0 grains No. 5 powder. The penetration was 4 inches in seasoned maple. The next one is the same bullet sized to .3105 inch and fired in a ⅜-inch Luger pistol with a charge of 11.0 grains No. 2400 powder. This one penetrated 3.0 inches in the same maple block. This latter one is definitely mushroomed and its folded cavity is filled with debris from the penetration block. The first one from the .32-20 revolver, however, shows far more power, because in addition to its greater penetration it is mushroomed fully twice as much. Its nose is set back .075 inch farther than that of the one from the Luger and its nose is spread .129 inch over the original bullet diameter as compared to the .045 inch increase of the one from the Luger.

The third sample is a misshapen mass of copper jacket and lead core taken from the head of a hog which it had penetrated 6 inches, from the side ahead of the ear. Apparently it was on the verge of complete disintegration when stopped. This one, loaded and fired in the .32-20 revolver, was identical with No. 1 above. The unaltered 80-grain bullet (designed for 2000 f.-s. m.v.) fired in stock fails to open up in this manner.

In the rifle, with 20-inch barrel, this same handgun load nearly penetrated a $\frac{3}{16}$ -inch steel which it merely indents when fired in the $\frac{3}{4}$ -inch revolver.

On March 24 this year Boser wrote about bagging a few red squirrels with the Bond-Ness .32-20 bullet in his S. & W. M. & P. revolver which has a 5-inch barrel. This little arm is a favorite of his for bagging cottontails, squirrels and grouse on hiking trips as it kills better than the .38 Special. In February he killed a large hawk with it at a distance of 100 feet, using 5.0 grains of No. 5 powder behind the W.R.A. 100-grain hollow-base bullet. He can load the same gun for successful chuck shooting, but he never uses more than 5 grains of No. 5 even in his R.A. solid-head cases.

Earlier that same month, he had tried the Bond-Ness .32-20 bullet in a 5-inch S. & W. K-Model on the Army "L" target at 25 yards with various different powder loads and got the following scores:

3.4 grs. No. 6	98
4.2 " " "	96
4.1 " No. 5	92
5.0 " " "	88
2.6 " B.E.	98
3.7 " " "	87

His best 50-yard group and score (84) was obtained with a charge of 2.6 grains Bullseye, and he opined the .32-20 could be loaded to nearly equal the target-accuracy of the .38 Special. He almost proved this a month later after he had improved his Bullseye load by adopting 3.2 grains and his No. 5 load by using 4.5 grains behind the Bond-Ness bullet. The latter load scored 94 on the S.A. 20-yard target, with 5 shots bunched in one hole. A fine off-hand score and a freak target with 50% in one spot. It is reproduced as an exceptional one for the .32-20 revolver. Boser used R.A. No. 1 $\frac{1}{2}$ primers in R.A. solid head cases.

In game shooting with the .32-20 revolver Boser says he has observed appreciably more destructive power for the same bullet when fired from a Smith & Wesson with its 12-inch twist as compared with a Colt and its slower 16-inch twist. The latter, however, is better adapted for the shorter 80-grain and 85-grain bullets, but he prefers the 12-inch twist of the S. & W. for 100-grain and 115-grain bullets at any range. There is a disturbing rumor that Smith & Wesson, Inc., will soon discontinue the .32-20 caliber.

* * *

28-Ounce Revolver for .22 target shooting is the new single-action, Model 822, Iver Johnson Champion. It has adjustable Patridge-type sights, a finger-rest behind the trigger guard, a big straight trigger with a short pull ($3\frac{1}{2}$ lbs., our sample) and a hammer adapted for thumb-cocking, because it is a Simon-pure single action. It does not have the familiar Iver Johnson hammer-block safety, responsible for the well-known "Hammer-the-Hammer" slogan. It does break-open for automatic ejection and reloading and it locks with a top latch like other I-J models. Its slightly-heavier, heat-treated cylinder is counter-bored (8 times) for high-velocity cartridges like the Superseal-Eight, and its adjustable rear sight and grip resemble those of the trigger-cocking model. Like both of these earlier .22 models, it has a six-inch barrel with integral rib, but that of this new Model 822 is much heavier.

This hefty and balance gives it an unusual feel for an Iver-Johnson, the increased weight being suggestive of Colt or S. & W., but the I-J feels thinner at the top of the grip and smaller in the hand. The new front sight may be screw-adjusted for elevation, to a limited extent, and the rear sight may be moved back and forth, somewhat inconveniently and uncertainly, for windage. I doubt that every shooter can get it zeroed exactly right for himself; but only approximately or thereabouts. The flat-face, flat-top sights are too narrow to be ideal, but they might be considered generally satisfactory for target practice, if not for match shooting.

The stock, of characteristically attractive Iver-Johnson walnut, is well checkered and also very well shaped, but somewhat thin and small

for normal paws, and probably too short for big paws. The sample was apparently not as well bore-aligned as our other revolvers of this make, because it threw lead spray to the sides and back. However, it seemed to be fully as accurate; adequately so for target practice. Over the 25-yard Police Course, completed once, I got 90 rapid, 91 timed, and 96 slow-fire. This means that hammer can be cocked efficiently for the quick-fire stages as these are normal scores for me. In fact, it did about as well as my bigger, smoother, heavier and better-equipped .22 Colt, two times out, and five points better than the trigger-cocker Iver .22. The price is about \$20.00.

This Champion Single-Action is a worthy practice arm, which can be further improved by a fuller and weighted grip and wider sights. I would prefer it to the double-action Sportsman, but it does not even approach the class of the Ultra-Sportsman for match shooting. It has a separate firing pin, which arrangement, as compared with hammer-nose strikers, has given far more ignition, cylinder-sticking and breakage troubles in other makes, but surprisingly few in several Iver-Johnson models which we have tried. We have found that the coil springs, characteristic of I-J revolvers, cannot be beaten for durability and dependability. Over a period of a quarter of a century we have demonstrated this fact to our own satisfaction; most recently in the severe test which we gave the little $2\frac{1}{2}$ -inch, I-J, double-action, pocket revolver, the .22 Protector.

* * *

Relative to that part of the article about Savage shotguns and Poly Choke in the May AMERICAN RIFLEMAN, we wish to advise that only the Single-Shot single barrel guns, with "POLY CHOKE" sell for \$5.00 more than the standard gun. On Repeaters and Automatics, the price is \$7.00 additional. Also, these "POLY CHOKES" are our standard SUPER POLY CHOKE except that the element of same is forged with the barrel—and is therefore from the same steel as the Savage barrels. The Sleeve, however, is of our own manufacture, and this is made from electric furnace chrome nickel steel, heat-treated. The Poly Choke Company is NOT manufacturing or selling the "ventilated" Poly Choke. Tests of this have never been completed, and through a slip it was announced that we are going to build it—which is not the case. The only CHOKE we are manufacturing is our standard SUPER POLY CHOKE, exactly as the one made last year.—THE POLY CHOKE COMPANY.

* * *

Shooting Coats. We have given one very tough and well-made coat some very hard use for more than a year and it scarcely shows any wear. It is well padded, stout felt underlying horsehide in generous expanses where it is calculated to do the most good. If anything, there is too much padding, in view of the present trend away from padding in the small-bore game. But this coat has everything: material, design, tailoring, workmanship and features calculated to give the shooter comfort and confidence. There is durable mercerized government cloth, sanforized against shrinking or stretching, a big bellows pleat at each shoulder, large shoulder pad, generous elbow pads and a felt sling pad. I am, of course, referring to the 10-X Imperial which sells at \$9.00.

Now we have a new sample, just as fine looking, just as well made and durable and just as hard to break in, but with added features. One of these is a pair of web straps across the back inside and connecting the armpit gussets to equalize the tension on both sleeves in any position. The other is a "No-Slip" elbow pad on the right sleeve, felt underneath, bound inside of horsehide, and about $\frac{3}{32}$ -inch of special red rubber outside. A tough flexible pad with a criss-crossed surface pattern that prevents slipping on any surface, regardless, and I don't mean maybe. To assure the shooter that the arm itself won't slip inside the sleeve, this non-skid contraption is augmented by a leather strap around the arm, threaded through the pad, above and below the elbow. These two straps may be removed if the shooter wishes, and of course that goes for the web back-straps also.

The way to mold this coat to the body is to throw it into the creek or soak it in a tub of water before donning it on a hot day. That will soften those stiffish pads and the evaporation will have a cooling effect on the wearer. There are five buttons down the front, but a talon-closer may be had to special order optionally, however, with less ventilation and more heat. The only improvement I could suggest to those who have a super-sensitive rib is to replace the hard buttons with soft leather or rubber buttons. The left shoulder pad for southpaws and the talon front are optionals without extra cost.

The optional "No-Slip" elbow pad is \$1.00 extra, making the 10-X Imperial coat \$10.00 up to size 48. The stabilized sling-pad on the upper arm is an exclusive built-in feature of 10-X coats. The horsehide cover is in one piece extending from below the elbow, up the arm and around it, with a gap adjacent to the fork of the sling at the beginning and end of the arm-loop. The new rubber elbow pad and web, tension, back-straps are available to owners of old Model 10-X Imperial and also Aristocrat shooting coats, at a total cost of \$2.00, on a 48-hour service with return postage prepaid. If the tough rubber wears fast, which is unlikely, the standard pad remains beneath.

On our sample the exposed portion of the finely corrugated rubber pad is 7 inches long and 6 inches wide, whereas the elbow uses only 4 x 4 inches. The excess is allowed for fitting different physiques. The same is true of the excess expanse of shoulder pads and arm pads. They can be trimmed down considerably when any given shooter is fitted individually. The pads are stiff because they are heavy with plenty of good material, an essential part of 10-X quality.

For me personally there is too much padding, both in expanse and in thickness. For small-bore shooting I would prefer a smaller and thinner arm pad, no shoulder pad and a pad on the elbows just as thick but more closely fitted to my own peculiar requirements. This standard coat, however, is dictated by the requirements of thousands of shooters. In my opinion it is an ideal .30-caliber rifleman's coat which will also serve for small-bore shooting.

The new pads and all come within the latest N. R. A. shooting rules, and are therefore legal. When we get new ones, requiring smaller and thinner pads, your 10-X Imperial will probably be as good as new, but you can count on Howard Smith to alter them at nominal cost. When the rule was changed to shorten elbow pads Howard did so for owners of 10-X coats at \$1.00 per coat. Also, his attention is prompt and his service swift.

* * *

Splendid Sights. The very progressive Redfield Gun Sight Corporation is making a potent bid for leadership in the field of rifle sights. They made a hit with their Jr. scope mount, and now they deserve the same popular response to their new line of receiver sights. Most of them are held to the relatively low price of \$6.50 and all of them are dependable, accurate, micrometer sights with additional worth-while features.

The new 70 series comprises more than 40 models for the left-side of rifle receivers including bolt-actions, slide-actions auto-actions and lever-actions. These are all small, neat and compact but very sturdy, held by two screws, usually in receiver holes already prepared for them at the rifle factory. For the autoloading, slide-action and lever-action rifles which are not so drilled and tapped, complete instructions are furnished with the sight, including an exact pattern of the template required for correct location of holes.

These sights are all blued, but the slide faces and the thimble bases bearing the graduations are left bright for easy reading. The direction of turn is natural, or clockwise for down, to save confusion, and the clicks are very distinct and positive. There are 3 minute-of-angle figures and 12 marks on both thimbles and 12 ($\frac{1}{4}$ -minute) clicks per revolution, which complete turn moves the slide one 3-minute graduation of the scale across the plainly read indicator or register point. Opposite it is a second point

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and a bare column for the shooter's own zero mark in yards. The knobs are flat and very neat, with sharply milled corrugations for easy control by the fingers. They are fully 1/2-inch wide and 3/16-inch thick. The windage knob is the same, and its scale and 1/4-clicks work identically, or 12 clicks per revolution and for each 3-minute graduation on the horizontal scale; clockwise for left movement of the peep and impact.

These target knobs are neatly arched on their sides and sufficiently unobtrusive for hunting purposes. However, for saddle-scabbard carrying the sportsman can get his knobs in a smooth hemispherical shape with a coin slot for control, as these rounded hunting knobs are optional on all Redfield sights in both series at no change in price. The eyecups are well proportioned and deeply dished for improved optical effect. We have made a suggestion for further improvement which probably will be adopted.

The only exception to the standard price of \$6.50 for all models in the Series 70 is the 70-L for the Model-99 Savage rifles, which costs a dollar more. This unique sight, excepting its base, is identical, but it fits over the wood on the left side of the tang and its base is screwed to the Savage top tang, like a tang peep, using the factory holes. This novel sight is a receiver-type tang-sight which should become very popular for Savage hammerless rifles as it brings the peep to the correct position to avoid any eye-smacking danger common to the tang peep and because it assures as easily controlled and positive adjustments as those of any receiver

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sight. The 70-G sight, for the Savage M-19 and M-23 bolt-actions, has an extended base whose arm is notched to straddle and thus clear the Savage left-side safety. Standard models of this 70 Series sight are available for the Mauser, Remington and Model-1917 bolt-actions.

The Model 75-HW receiver sight, which we are using on our sample 75 Winchester, has been described in these columns, previously. Its characteristics are typical of the 15 Models in the new Redfield Series 75, which are made for practically all small-bore rifles including such falling-block single shots as the Ballard, Martini and Winchester. Hunting knobs are optional also on any sight in this Series 75 at the standard price of \$7.50.

The most recent addition to the Redfield line is a quick-detachable extension receiver sight for the 52 Winchester target rifle, offering several interchangeable locations, back or forth, and selling at about \$13.50. Mr. Tytegraff showed us his sample, but none is available now for a description here. This model will probably come out with the improved eyecup which we suggested to him at that time. In conclusion, I want to add that the three samples of Series 70 (\$6.50) and Series 75 (\$7.50) sights which we have all show excellent workmanship and freedom from backlash, and we are glad to endorse them.

Krag Speed Lock has been worked out by Kenneth E. Clark of Madera, Calif., who sent in a plain Krag Sporter with military blade and Rice peep to show us his action work. The cocking knob was cut off to shorten the striker by 1 3/16 inch, the end being neatly rounded with its down-curve continuing to the cocking notch. The latter he cut back about 1/4 inch. This leaves 1/4 inch slack in the rotation of the bolt, as the handle is raised, before the cocking cam takes hold, but the fall of the striker is shortened to less than 1/4 inch. The normal fall or striker travel of the Krag is fully 1/2 inch.

When cocked, this speed lock permits raising the bolt handle more than twice as high as mentioned above for the fired-position slack, or a quarter-turn of the bolt. It then comes to a definite stop, whereas the normal Krag does not so conveniently stop but unlocks its lugs at this point. The first-described condition of handle slack may be objectionable, but it can be easily overcome by a spring-and-ball stop or retainer, which provision would also be an advantage on many of our standard bolt-action rifles. In fact, the only question in my mind about the practicability of the Clark speed-lock relates to ignition. That short fall and lightened striker might fail on some lots or brands of tough-metal or weak-pellet primers. This, however, remains to be determined.

The Ultra-Speed .22. The cartridge I have in mind is the .250-3000 case necked to 22 caliber, and commonly referred to as the Varminter.

The rifle is a Savage Model 20 action, Savage stock, Savage Hornet barrel blank, four groove 16-inch twist, finished 26 inches long and the same weight as a standard Winchester .220 Swift barrel.

A special fitting of the bolt and barrel incloses practically all the cartridge head within steel. The face of bolt fits close against rear end of

barrel. The firing pin is smaller than standard and bushed to give a perfect fit in bolt.

Sights—Weaver 330 scope in Weaver "B" mounts. No iron sights.

All fitting, chambering, and gunsmithing work by V. Gipson. He also made the forming dies, straight-line bullet seater, etc.

Because of the four wide lands and the slightly tighter bore of the Savage barrel this rifle cannot be used with maximum loads recommended for the Varminter. The accuracy is tops. I have often shot five shot groups of an inch or under at 100 yards, and believe slightly smaller groups would be easy with a ten-power target type scope.

I used this rifle on deer this last fall (1938) with two loads; 55 gr. Sisk Express S.P. and 34 grains No. 4064, and the 50 grain Lovell bullet with 35 grains No. 4064. All loaded with Donaldson's formula graphite wads.

On the second day of the open season I stopped a badly wounded doe for another hunter who had made two or three body hits with a 303 Sav. Some of you deer hunters know that a mortally wounded deer that is on its feet and going, is mighty hard to stop, it seems to be immune to further shock. This doe came my way plunging madly. I hit it just back of the shoulders ranging back, a lung and gut shot, with the 55 grain bullet. Deer stopped as if struck by lightning. I did not see this deer dressed but the man with the 303, who got it, told me later that my bullet made a bad mess of the insides.

Two days later I killed my deer. It was a standing broadside shot at 75 paces, load was the 50 grain Lovell bullet. I purposely shot this deer in the short ribs and it ran as though it were not hit, in fact a young lad who was with me at the time thought I had missed it. There was a good tracking snow, and we had no trouble finding it—it ran about 150 yards and died in the middle of a jump! Bullet did plenty of damage and penetrated about six inches. I once saw a buck shot with a 110 grain Springfield load under similar conditions, and it ran as far before going down. The wound was larger but penetration was no more, if as much.

My personal reactions to this very limited use of this 22 on deer are that it is not the best deer cartridge, but that it is a better deer killer than the average cartridge used for that purpose. If I owned a 220 Swift or Varminter I would not buy another rifle just to hunt deer, also if I were to buy a rifle especially for deer it would be neither of these! The superb accuracy of these cartridges makes them very deadly in the hands of a careful shot.

The most accurate reduced load to date: 16 grains No. 2400 and the 50 grain Sisk Lovell bullet. This is just the load to take the place of the Hornet cartridge.

The Weaver 330 scope is very satisfactory. It mounts ahead of the bolt handle and out of the way. The minute of angle adjustments are accurate. Sighting can be changed and returned to the original sighting with the precision of the old reliable Lyman 48.

I intend to use this rifle strictly as a hunting arm, and it will be carried in a rough country on hard trips and therefore I preferred the hunting type of sight to the target type—which would generally be chosen for this kind of a rifle.

Mr. Gibson has been experimenting with the 250-3000 case necked to 22 caliber for several years. Some with a long gentle neck angle like the .300 Magnum, others with a lot of body taper, etc., etc. Some of these shoot fine, but none of them would shoot with the Varminter. All of which seem to prove that the sharp neck angle is the proper thing. And this makes us wonder if the .300 Magnum is really as good as it would be with a sharper neck angle. Maybe the .300 Hoffman or the .30 Newton would be superior to the .300 Magnum! Who knows?

Speaking of the accuracy of the 22's I saw J. Bushnell Smith fire a five shot group in a match—100 yards using a Varminter. He called his last shot out, but at that he had a 1 1/4" group, and his first four shots were in 1/2 inch! In this same match I saw a .220 Swift, using Smith's loads and the new Workyns

bullet make a $\frac{5}{8}$ " group! This was with bench rest and scope.

These 22's sure have something in the way of accuracy that our other cartridges don't have. What is it? A slower twist? I would not be surprised. A 16" twist in a 22 cal. is slower than a 20" twist would be in 30 cal. A .30 caliber with a 10" twist will keep a 220 grain bullet point on at 1900 f.s. vel. so why do we need this same twist for a 150 or 180 grain bullet at 2700 f.s.?—BYRON COTTRELL.

Automatic Belt Feeds—In many pictures of Browning and other machine guns the cartridge belt is shown entering the gun. Could you tell me how the cartridge is taken from the belt and put in the chamber without disrupting the automatic functions of the arm? Thank you.—D. N.

Answer: There are many types of belts used in machine guns. The British Hotchkiss used a continuous metal belt which, however, was not very flexible. For aircraft machine guns the belt was made up of links with the cartridge forming the connecting pin between links. This belt, of course, is disintegrated link by link as each cartridge is withdrawn. The most popular is the web material because of its flexibility, and I believe this is the kind of belt you have in mind. The advantage of this cloth belt is its flexibility and its lightness and compactness for transportation and packing when empty.

In all cases the cone-shaped cartridge was not pushed out, but pulled out through the rear and then dropped into the action and pushed forward by the action. Various devices such as claws and wheels were used for this purpose, the belt being fed through continuously across and above the action. I hope this satisfies the question which has arisen in your mind.

Rumors would have it there's a new and prominent make of autoloading shotgun in the offing, and following it a high-power semi-automatic rifle, much later however. Also a .410 bore Over-Under shotgun and a combination .22 rim fire and .410 Over-Under gun, both latter at less than \$40.00. Also a brand new .22 target rifle probably intended to compete with the M-75, M-416, M-50 and M-19 bolt-actions.

TRADE DOPE

Cheap Recoil Pads. Fray Merston Inc. have sent us a sample Blue Line recoil pad which sells at only \$1.75. Same quality as their White Line Recoil Absorber (\$2.50) but thinner and different inside.

Graybar Electric Co. enters the sporting field, judging from the announcement that they have been appointed distributors of The Duff-Norton pistol and rifle targets, which are automatic, and electrically time-controlled as developed by T. A. McGinley of Pittsburgh, Pa.

Useful Stickum. Gunsmith-Cement for all materials has arrived and seems to be what we sought for that Tenite tip which persisted in shooting off our .270 Winchester forestock when screws, dowels and other glues were tried. Casein and duPont both failed for us after the stock maker's glue had failed initially. The friction-top can of Gunsmith Cement, which seems to be a first-class product, was sent in by Frank Mittermeier, who now has also added abrasive strips of felt and rubber for polishing sticks, steel and brass brushes for cleaning primer pockets, and lead vise-jaws, up to 5-inch wide, together with molds for casting same. Also his new bronze dent-removers for 12-, 16-, 20-gauge and .410-bore barrels, in 4 sizes, may appeal to gunsmiths.

W. L. Pierson became affiliated with O. F. Mossberg & Sons on April 11 last, after twenty years with Marlin Firearms Company, from which he resigned. Best wishes to Walter and congratulations to Mossberg.



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OUTERS LABORATORIES
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R. G. Walker, familiar figure at Perry, Ritchie, Sea Girt and sport shows as a representative of Bausch & Lomb, has relinquished the managership of that firm's Specialty Sales Department to join International Research Corp., on May 1, at Ann Arbor, Michigan, who feature the popular Argus cameras in the moderate-cost field. We are going to miss those pleasant B. & L. contacts with genial Roy on the personal end, and again our congratulations go to the acquiring firm.

52-W Bull Gun with Marksman stock and heavy 28-inch barrel, which tapers from 1½ inch to ¾ inch, and weighs 12½ pounds without sling, is announced by Winchester. Receiver is standard design and weight but moving parts have been lightened to reduce vibration. Flat or round-top receiver is optional. Standard finish is a special sand blast to obliterate glare.

Thirty-Dollar Double will be announced by Winchester about July 1. This new Model 24 12-gauge features an all-steel frame and an electrically-welded forearm lug, new to this field. Coiled wire springs are used throughout. Firing-pin retractor is another good feature. All-steel fore-end shoe, and the barrel-locking in a forged lug, are other features of this strong double gun designed to sell at less than thirty dollars.

The standard specifications call for a beaver-tail fore-end effect to protect the fingers. The walnut stock is 14¼ x 1½ x 2½ inches, with a pitch down of 2 inches at the muzzle of the 30-inch, 12-gauge barrels. Right, modified; left, full choke; 2½-inch chambers. Two-trigger, hammerless takedown with speed-lock action and automatic safety. Sample for our test is on the way.

Bore Light for illuminating shadowed interiors of actions and barrels was sent in by Davern Products Company, of Dorchester, Mass. It is made like a pocket flashlight with the contact push-button in the upper end and a right-angle projection of transparent, crystal clear plastic (lucite) at the other end which carries the light to the flat end of this plastic hook. This permits convenient introduction of the light into the breeches of solid-frame guns which cannot be viewed through the breech and but ineffectively through the muzzle. This Gun-Illuminator has worked well in our handguns whose shorter barrels allow closer inspection. The non-glaring light at the point of inspection showed the surface well enough to distinguish frictional wear from fouling and corrosion and pitting from tool marks. Occasionally such a gadget would be very useful in the gun room and workshop.

Stock Blank Service. The Howard F. Hawk Co., of Reading, Pa., sent in a plain walnut blank which was exceptionally well inletted for the Springfield Sporter. This was interesting in view of the fact that they will furnish such blanks up to 3-inches thick at only \$4.00. The inletting was the neatest we have seen. Selected wood is \$5.00; fancy, \$6.00; burl, \$8.00 to \$15.00; Circassian, \$8.00 to \$20.00;



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Inexpensive Remodeling is featured by the Yellowstone Arms Company of Columbus, Montana. Mr. Frank Plemp, the proprietor and an Ordnance Reserve lieutenant, knows rifle-stocking and remodeling requirements of military rifles. Prices for complete jobs, with choice of beaver-tail, semi-beavertail or snobble-tip forearm, run from \$12.50 for the Economy job to \$24.75 for the Deluxe Custom job on the M-1917 rifle.

This latter includes a Redfield 102 receiver sight, matting top of receiver, rebluing, straightening guard offset and dressing off magazine without cutting its capacity, besides the usual grinding-off of Enfield ears, cutting barrels, crowning muzzles, adjusting action and trigger. The same job without checkering or swivels is only \$18.50. The \$12.50 job includes oil finish and choice of aluminum buttplate or recoil pad. Other complete jobs on the Enfield go up to \$34.75, according to sight selection, front and rear. Somewhat similar jobs on other military rifles are: Krag, \$17.50; Mauser, \$22.50, and Springfield, \$24.50. At this time Mr. Plemp is remodeling an Enfield for us with the Deluxe Custom job and the Turner recoil pad which he features.

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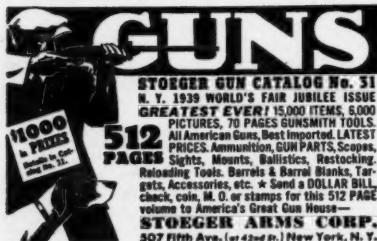
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TOURNAMENT REVIEWS

(Continued from page 43)

with a score of 7633 to 7515. California shot in two divisions, the Northern California score being 3796 and the Southern 3719. C. W. Hasenau, Cleveland, was high man on the Ohio team of twenty with a score of 388. The course of fire was 20 shots prone and 20 shots standing.
—H. D. ERK.

ILLINOIS—The Commonwealth Edison Rifle and Revolver Club opened up their fine new indoor range to the riflemen of the Chicago area April 15 and 16, by staging a series of open rifle matches. The tournament was held under the auspices of the Illinois State Rifle Association. The range, scoring of targets, and the posting of scores was conducted with clock-like precision. The range has eight firing points and is highly illuminated from the firing point to the targets. The light intensity at the target is 50 foot-candles.

Seventy-one shooters participated and most of them "shot the works." Close competition added considerable interest to the matches. Three scores of 190 headed the list in the four-position metallic sight match. "Doc" W. E. Davis ranked J. B. George and W. Sasko to win first honors in this event. W. G. Hollman used iron sights and scored a 194 in the prone-standing any sight match to take first place. G. F. Blackman's 199 headed the list in the prone-sitting iron sight event. A fine score of 190 for the kneeling-standing any sight match won for E. G. Cook, who came down from Lake Beulah, Wisconsin, to harass the local talent. W. H. Davis' offhand scores again put him on top when it was found that he and E. G. Cook were tied for high aggregate with 758 each.

The Chicago Rifle Club 4-man team score of 749 in the prone-standing match gave them an ample lead in this event. A two-man team, Miss Ruth Peterson and F. E. Morgan, Jr., found tough going for their 394 in the prone-sitting match was only one point up on the team of G. F. Blackman and Roy Gaut.

The experience gained in this tournament proved the facilities at the Edison Club range to be adequate to accommodate a much larger number of competitors, and in response to many requests it is planned to make this tournament an annual event.—BYRON PUTMAN.

CALIFORNIA—Palma Team Match. The Bay District Small Bore Rifle League staged their annual Palma Team Match April 23, 1939 on the Richmond Rifle and Revolver range. Fourteen teams competed and not until the last shot was fired was the winner known. This match is fired on the C5 target, five-man teams, four high to count.

The Oakland Rifle Club managed to nose out the Mare Island crowd: 891—137V's to 891—122V's. In third place was the Oakland Rifle Club No. 2 with a score of 890—125V's. All told there were 68 individual entries. High man for the day was H. Keenan of Oakland with a score of 224—36V's; in second place his team mate Jimmy Williams with the same score but with 35V's. Third place was won by L. Farnsworth of the same club with only 30V's.
—HUGHES RICHARDSON.

PENNSYLVANIA—Wyoming Valley Rifle League. At their recent annual meeting at Tunkhannock some 200 members summed up the results of the season of indoor firing, during which six teams, representing as many localities in Pennsylvania, fired a series of twenty-five matches. Team averages for the series were:

Stanton 807	Factoryville 709
Falls 754	Mehoopany 691
Pittston 736	Tunkhannock 609

The meeting took the form of a dinner party, with several speakers, including Major T. L. Toban of Scranton, who spoke on the organization of civilian rifle clubs, and J. W. Varner, Scranton, who accompanied his remarks with several reels of motion pictures showing Pennsylvania deer hunting. To T. E. Williams of Scranton went the honors as high individual scorer in the league series. His season high was a 188 x 200.



The Arms Chest is an open market trading post where manufacturers, distributors, purveyors of professional services, and our own readers may cry their wares to fellow sportsmen at a modest cost. Returns are uniformly excellent—scores of advertisers have reported truly phenomenal results. Advertisements are accepted from members of the National Rifle Association, for their individual and personal transactions exclusively, at 5¢ per word INCLUDING NAME AND ADDRESS, minimum charge \$1.20. For all dealers' advertisements the rate is 10¢ per word INCLUDING NAME AND ADDRESS, minimum charge \$1.50.

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In describing the condition of guns advertised the following standard phrases must be used: **Perfect** means factory condition. **Excellent** means new condition, implying negligible amount of use. **Very good** means practically new condition, implying very little use, resulting in no appreciable bore wear and very few and only minor surface scratches or wear. **Good** means moderate use with some finish worn off, and only moderate bore wear with no pits and nothing worse than a little roughness in the bore. **Fair** means reasonably hard service, reasonable wear inside, and nothing worse than a few very minor pits in the bore, implying the gun is practical and sufficiently accurate for hunting purposes. **Poor** means marred appearance and pitted or badly worn bore.

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This section provides a quick, inexpensive means for disposing of guns and accessories no longer needed, or for the purchase of more suitable similar items. We urgently request that a full description be given of every article offered, and its condition (see complete instructions above), for transactions of this sort must be based entirely on good faith and mutual satisfaction. Deliberate misrepresentation will of course result in immediate expulsion from N. R. A. membership.

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KRAG 22", French walnut, checkered p. g. stock, recoil pad, semi-beaver, swivels, receiver sight, good, \$25.00. Wild cherry P.G. Krag stock, \$4.00. Ideal No. 225438, \$4.00. L. W. Lowell, 264 Westbrook St., So. Portland, Maine. 6-39

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WINCHESTER 75, new, \$25.00. Remington 24A Long Rifle, Marble sights, very good, \$18.50. Remington 241 Long Rifle, very good, \$17.50. Prices on application any gun. Henry Schoolfield, Reidsville, N. C. 6-39

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REMINGTON 30SX Express, .257 Roberts, open rear sight, ramp front sight, 24" barrel, good, \$35.00. Colt Shooting Master, 38 Special, holster, cartridge pockets, grip filler, perfect, \$40.00. Royal Fowle, Watsonville, California. 6-39

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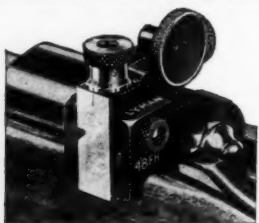
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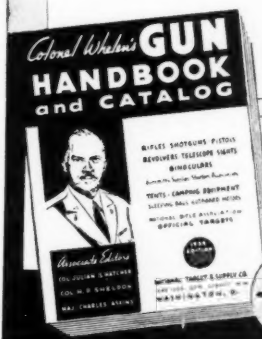
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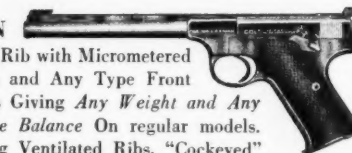
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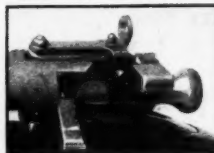
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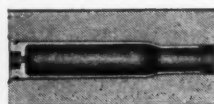


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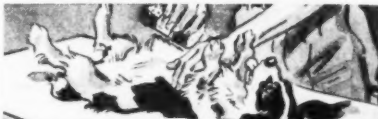
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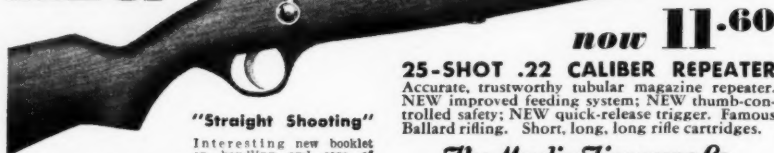
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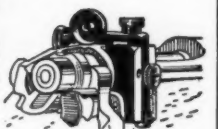
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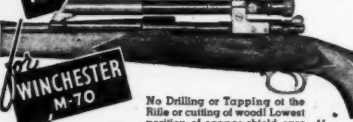
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